OCT. 17 1958

PETROLEUM WEEK

A McGRAW-HILL PUBLICATION

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Price 50 Cents

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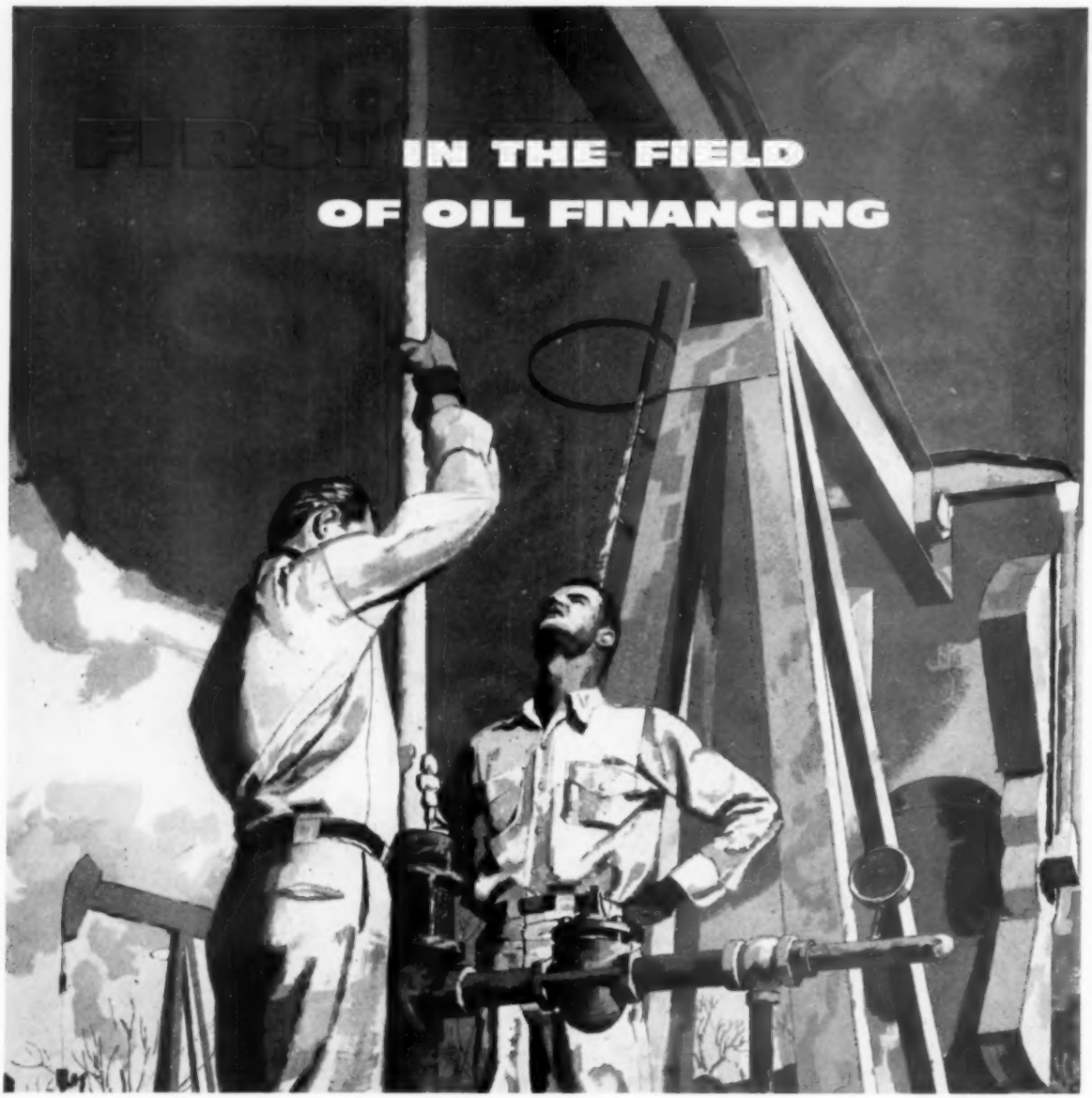

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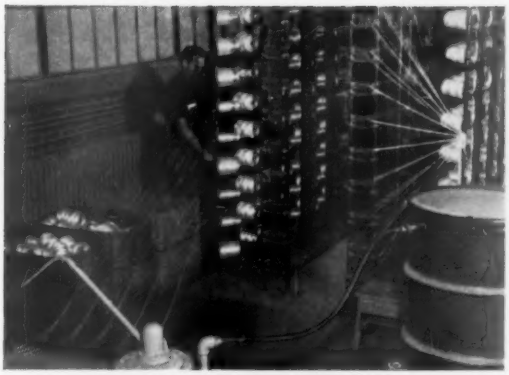

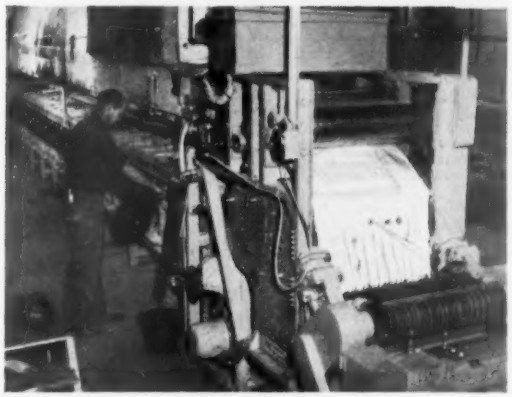

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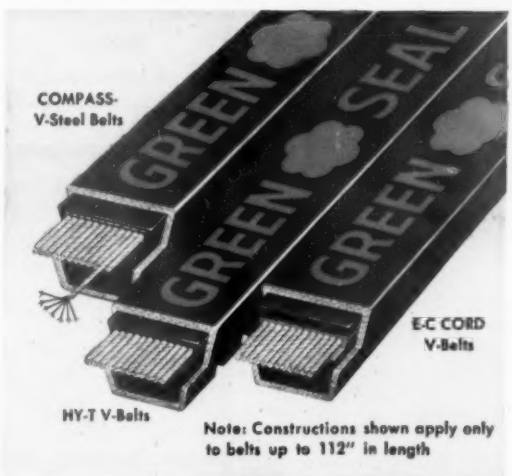

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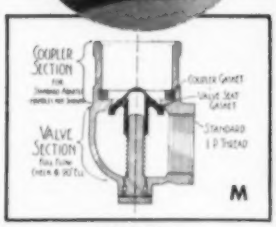

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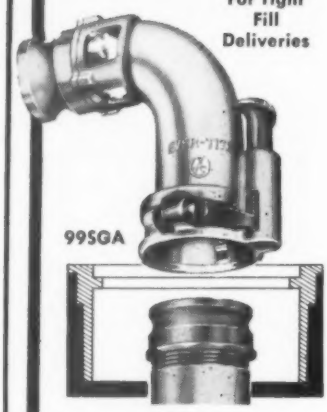
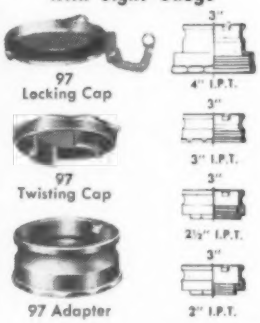


EVER-TITE "99" COUPLER with Sight Gauge



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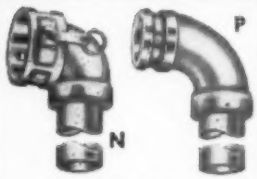

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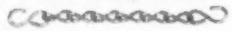
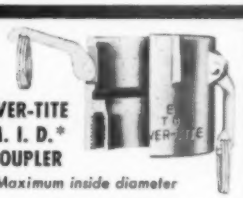


Chain for attaching Dust Caps or Dust Plugs to adapters or couplers

EVER-TITE SPOOL ADAPTER



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A McGRAW-HILL PUBLICATION

PETROLEUM WEEK **October 17, 1958**

Number of copies of this issue printed: 47,314 **Vol. 7, No. 16**

Published weekly by McGraw-Hill Publishing Co., Inc. James H. McGraw (1860-1948), founder. Publication office: 871 N. Franklin St., Chicago 10, Ill. See panel below for directions regarding subscriptions or change of address.

Executive, Editorial, Circulation and Advertising offices: 330 W. 42nd St., New York 36, N. Y. Donald C. McGraw, President; Joseph A. Gerardi, Executive Vice President; L. Keith Goodrich, Vice President and Treasurer; John J. Cooke, Secretary. Officers of the Publications Division: Nelson L. Bond, President; Harry L. Waddell, Senior Vice President; Ralph B. Smith, Vice President and Editorial Director; Joseph H. Allen, Vice President and Director of Advertising Sales; A. R. Venezian, Vice President and Circulation Coordinator.

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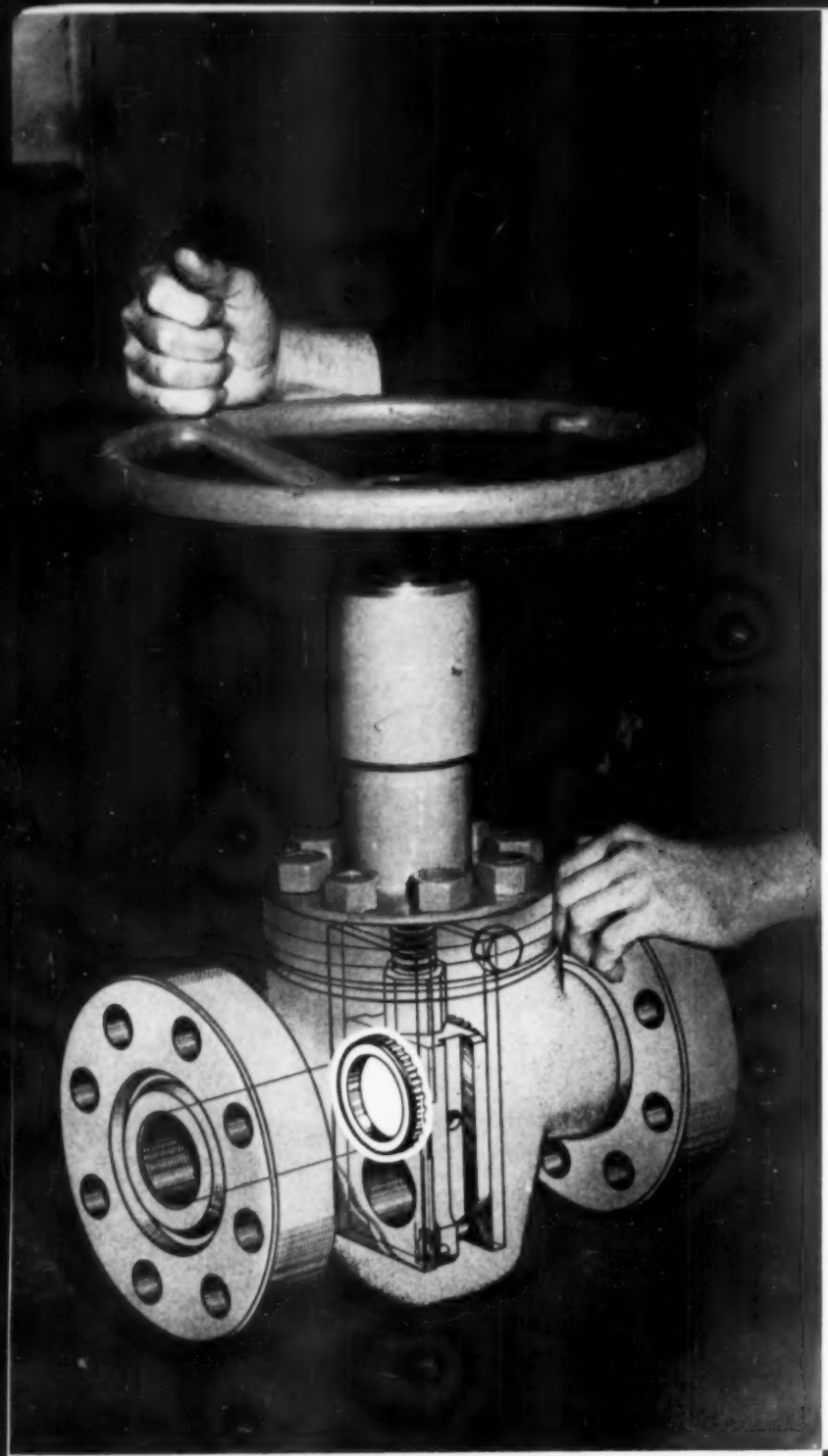

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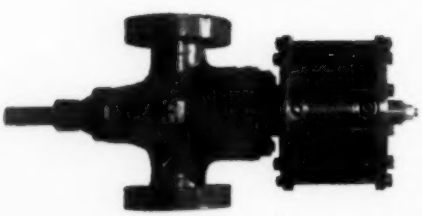

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60-Second Summary

WHAT'S HAPPENING IN OIL

AT-A-GLANCE PETROLEUM WEEK

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October 17, 1958

Two Canadian gas lines competing for markets in California will build a joint line from Alberta to the U.S. border. The move was suggested by Alberta's Oil & Gas Conservation Board. . . . p. 16

•

Product pricing designed to "hold" accounts could lead to serious downward pressure on crude postings. Unrealistically low quotations are squeezing terminal operators, refiners, and producers. . . . p. 60

•

Downward "adjustments" continue to hit crude prices as refiners act to offset lower realizations. The latest reduction places the price of Oklahoma sweet oil below that of West Texas sour crude. . . . p. 11

•

A Caltex affiliate has indications of an oil discovery in Turkey, the first by a foreign company. Two tests found 10-gravity to 11-gravity crude between 3,500-600 ft. . . . p. 50

•

Development of the Black Warrior Basin in Alabama has been handicapped by lack of money and poor technical knowledge. But geologists insist the basin is "loaded with oil and gas." . . . p. 21

•

British American Oil Co., Ltd., has extended processing operations to Western Canada with a new refinery and a gas processing plant, both in British Columbia. . . . p. 42

•

The chief purpose of Desk and Derrick Clubs is to increase members' knowledge of the oil industry, thereby enabling them to serve it better. That was stressed last week as the girls met in convention at Los Angeles. . . . p. 14

•

'For hire' gas line contracts are running into a delay at FPC. The agency has failed thus far to act on two such proposals, wherein the pipeline merely acts as a carrying agent to link the buyer and the producer. . . . p. 34

•

It's more profitable to wildcat in Western Canada than to drill in some areas where oil has been found. That has been the experience of Sun Oil during ten years of operations there. . . . p. 25

•

A Shell company plans extensive thermal recovery operations in the Bolivar Coastal Fields in Venezuela. It has applied for permission to use several techniques to increase recovery of heavy crude. . . . p. 50

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Up to the Minute / SIGNIFICANT LATE NEWS

AT-A-GLANCE PETROLEUM WEEK Copyright

October 17, 1958

A shutdown, ordered by the Interior Dept., of oil production on Indian and federal leases in Utah may be avoided. The shutdown was ordered for Nov. 10, due to gas flaring in the Aneth area (page 12). Close observers note that El Paso Natural Gas Co. will complete its pipeline from the area by Nov. 1, and will be ready to move gas as soon as FPC acts on its application. Objections raised over the price El Paso is offering for gas, observers predict, won't stand up, since the delivered price in California will be less (due to lower pipeline cost) than El Paso now gets for gas there.

But all major pools in southeastern Utah will be closed for "evaluation" for six days starting Oct. 20. The purpose is to permit Utah's Oil & Gas Conservation Commission to determine if there are wasteful production practices and to study bottomhole pressures. Utah has no market-demand proration law, but production can be limited to prevent wasteful practices that would damage the physical productive ability of reservoirs.

•

It looks as if Oasis Oil Co. has come up with its second winner on its second try in Libya. The company reports its No. B1-32 Dahra, located 24 mi. south of the company's initial discovery, the No. 1 Bahi (PW—Jul.4'58,p6), tested 38 bbl. of 36-gravity oil with no water in 1¼ hours from a limestone interval at 3,758-808 ft. Both wells are in Block 32.

•

The Midwest gas case is now in the hands of the FPC commissioners for a final decision. They heard closing arguments this week on whether Midwestern Gas Transmission Co., a Tennessee Gas subsidiary, should be permitted to build a Canada-to-Tennessee pipeline to serve midwestern states. Opponents argue that the lack of an export license from Canada is sufficient grounds for nullifying Midwestern's case. A ruling is likely by Nov. 1.

•

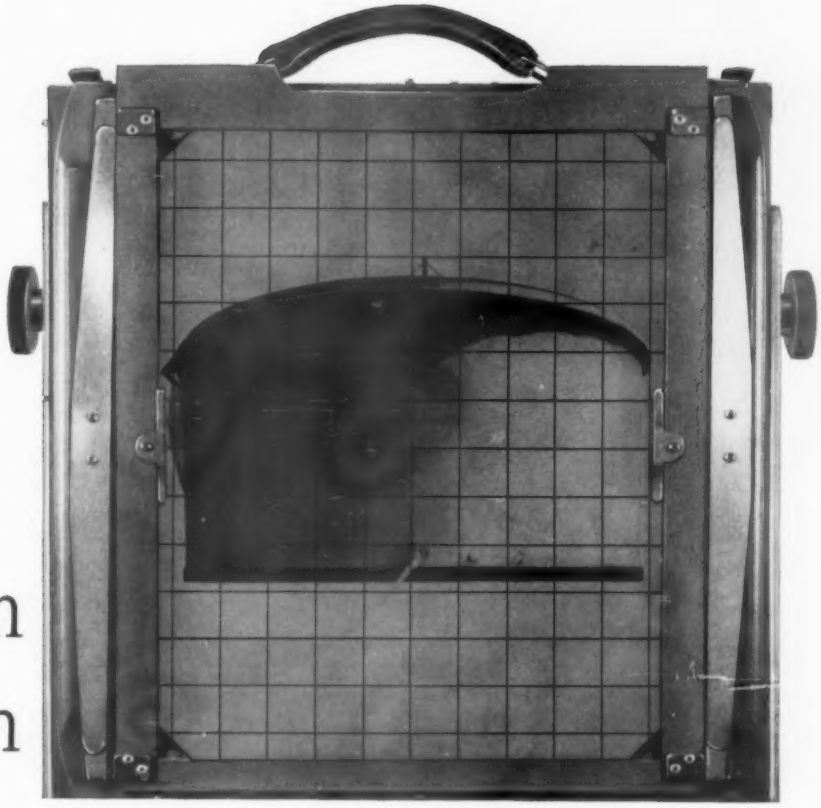
A new—but still preliminary—agreement has been reached between a U.S. group and Argentina on an $800-million oil development plan. The U.S. group, headed by Atlas Corp., must send a mission to Argentina before Oct. 25 for further negotiations.

A Nov. 12 deadline has been set for concluding a "definitive" contract, although Argentina has the option to extend the deadline one month under terms of a "memorandum of understanding" signed this week.

Any final contract may include all or some of the projects originally proposed. These include financing and credits for equipment and interim oil purchases, as well as extensive drilling and a gas pipeline.

•

Gulf Oil is moving the operating headquarters of its domestic production activities from Pittsburgh to Houston. The move, to be made around the first of the year, is part of a decentralization program that has been under way for several years. Gulf will continue its district offices at Fort Worth and Houston.



keep gum formation out of the picture with... Tenamene

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The Tenamene line includes every principal type of gum inhibitor in commercial use today.

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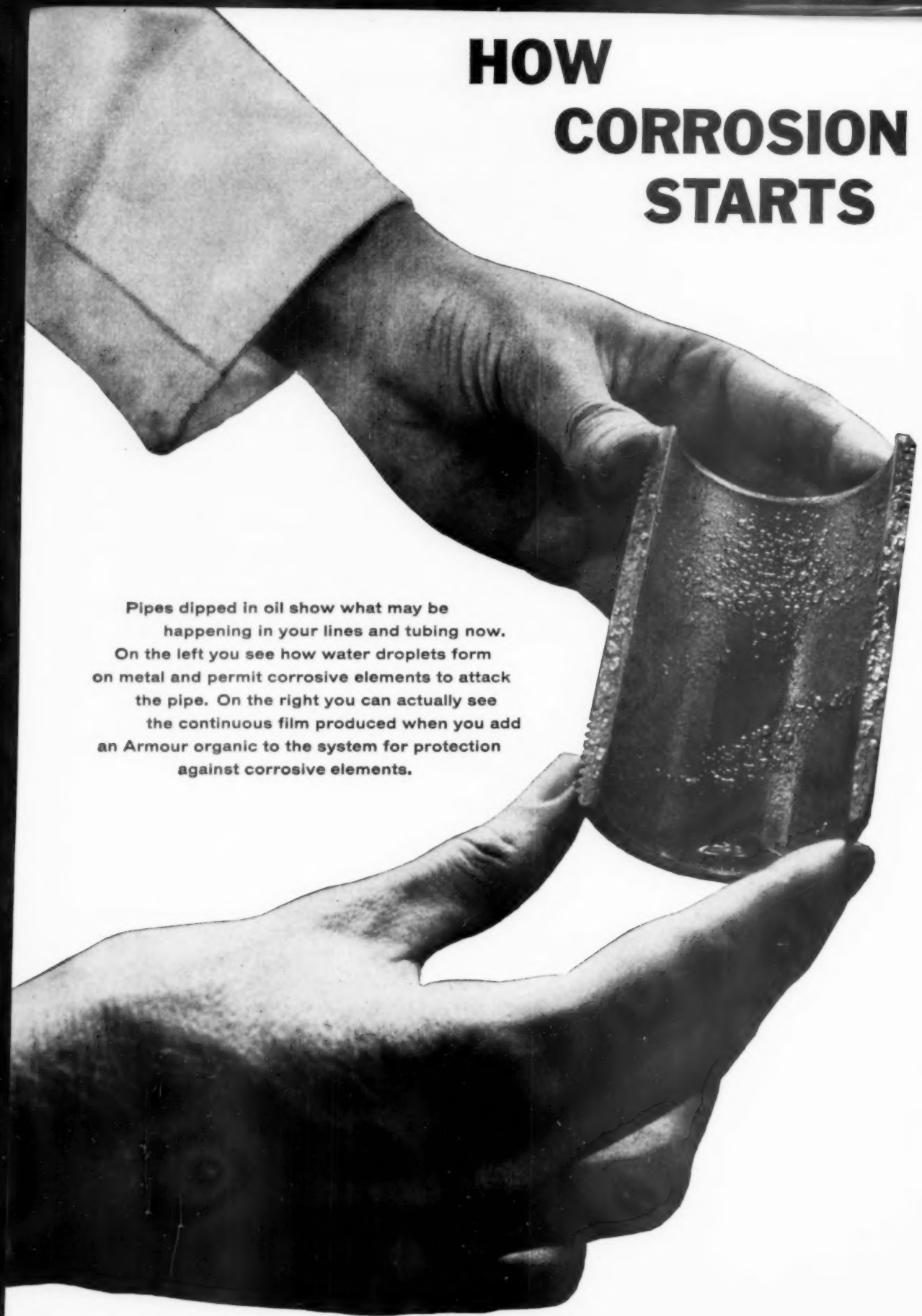
HOW CORROSION STARTS



Pipes dipped in oil show what may be happening in your lines and tubing now. On the left you see how water droplets form on metal and permit corrosive elements to attack the pipe. On the right you can actually see the continuous film produced when you add an Armour organic to the system for protection against corrosive elements.

HOW ARMOUR ORGANICS STOP IT

Duomeens® and Arquads® form continuous films. They lock out water and corrosive elements—give up to 99.5% protection.

In primary and secondary oil recovery operations, Armour organic chemicals offer unmatched protection against corrosion. As little as 10 ppm protects pipes and equipment—above and below ground.

Duomeens and Arquads protect against the corrosive effects of brine, hydrogen-sulfide and other corrosive elements. Because they adsorb continuously on metallic surfaces, Armour organic chemicals are lengthening the life of pipes and equipment, and cutting replacement costs in many oil fields.

• • •

There are variations of these basic Armour inhibitors. Each has characteristics useful in specific applications. They are effective at about 10 ppm in water-flooding, or at about 50 ppm when used as down-the-hole inhibitors, (basis: 100% activity).

Duomeen CD-50: Effective corrosion inhibitor in all water systems. Completely dispersible in water. **Duomeen CDA-50:** Used in systems where carbon dioxide and oxygen corrosion are a problem. Water soluble. **Arquad T-2C:** Particularly effective in fresh water systems. Ranges from water soluble to dispersible. **Armac CD-50:** Especially effective in fresh water systems and low sulphate brines. **Duomeen TDO-50 (Liquid):** An easy to use, oil soluble, water dispersible, down-the-hole corrosion inhibitor. Utilized to inhibit corrosion in salt water disposal systems. **Duomeen TDO (Fluid paste):** 100% active, oil soluble corrosion inhibitor, also used in salt water disposal systems.

Duomeen TDO under varied test conditions

	Control	With Additive	Gals. per 1,000 bbls.**
ASTM Turbine Oil Test	Heavy corrosion	No corrosion	1.7
Revolving Wheel Test H_2S saturated brine-kerosene	39.6 mpy*	3.8 mpy	2.1
Salt Water Disposal System Test Coupons installed at well heads	15 mpy	.5 mpy	0.2

*Mils penetration per year **Basis, 100% Activity

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measure mud service...

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Where Are Crude Prices Headed?

These crudes were posted →	Oklahoma Sweet 40-Grav.	Oklahoma Sweet 20-Grav.	West Texas Intermediate 40-Grav.	West Texas Intermediate 20-Grav.	Texas Gulf Coast Mixed Sweet 40-Grav.	Texas Gulf Coast Mixed Sweet 20-Grav.	Illinois Basin Flat	Wyoming Salt Creek 40-Grav.	Wyoming Salt Creek 20-Grav.
in Dec., 1956, at →	$2.90	$2.50	$2.83	$2.43	$3.23	$2.83	$2.90	$2.90	$2.50
A general advance, ranging from 25¢ to 45¢ a bbl. brought them . . .									
. . . in Jan., 1957, to →	3.15	2.75	3.08	2.68	3.68	3.28	3.15	3.15	2.75
There were some downward adjustments in 1957, and prices . . .									
. . . in Jan., 1958, were →	3.15	2.75	3.08	2.68	3.68	3.28	3.05	2.95	2.14
Further cuts and wider gravity differentials moved prices . . .									
. . . in mid-Oct. to →	3.01	2.45	3.08	2.68	3.68	3.28	3.00	2.95	2.14

A new round of downward adjustments based on refinery valuation is making sharp inroads into posted prices for some crudes.

In the case of some crudes, reductions have trimmed prices close to—or, in a few cases, below—the postings that were in effect before the last general advance in prices, in January, 1957 (table, above).

A few refinery-realization type of adjustments were made in late 1956, just before over-all crude prices were advanced 25¢ to 45¢ a bbl.

And since that general advance, there have been several downward adjustments, primarily in late 1957 and early 1958.

For the most part such selective adjustments were either in the form of price penalties for the relatively low-value highest gravities and lowest gravities, or reductions for some of the least desirable sour oils.

The latest adjustments hit the full gravity range of Oklahoma sweet crude, a cut that could influence other crude prices.

Sunray Mid-Continent Oil Co. and Kerr-McGee Oil Industries, Inc., the two largest buyers in Oklahoma, reduced their postings for sweet crude early this month by amounts varying from 14¢ to 31¢ a bbl.

The 14¢-a-bbl. reduction applied to crude between 36-gravity and 40.9-gravity, making the posting $3.01 a bbl. For crude below 36-gravity, the two companies increased the gravity differential to 3¢ for each degree, instead of 2¢.

Not all buyers have met the reduction in Oklahoma. But several that haven't taken any action say they are seriously studying their over-all price pattern.

The reduced postings for sweet crude in Oklahoma place it from 1¢ to 20¢ a bbl. below the price paid for West Texas sour crude.

And West Texas sour, with a top posting of $3.02 a bbl. for 40-gravity, is priced 6¢ a bbl. below West Texas intermediate (shown in table), and 13¢ a bbl. under the price schedule for West Texas sweet.

Also, the new posting for Oklahoma sweet crude is 4¢ a bbl. under the posting of $3.05 a bbl. by a few buyers for 40-gravity Oklahoma sour oil. A majority of the buyers, however, post a top of $2.95 for sour crude in Oklahoma.

The reduction in Oklahoma spread quickly to North Texas, where The Texas Co. lowered its posting for the Sherman field, in Grayson County, by 7¢ to 24¢ a bbl. to a top of $3.01 for 40-gravity. The largest cuts were made by increasing gravity differentials.

Earlier, Sinclair Crude Oil Co. had trimmed from 2¢ to 34¢ a bbl. from crude postings for 35-gravity and below in Cooke and Grayson Counties, Texas. The adjustment was made by increasing the gravity differential to 4¢ a bbl. from 3¢.

While not all crudes are interchangeable, Oklahoma oils compete with West Texas, Rocky Mountain, and Illinois Basin crudes in the large Midwest refinery market, extending from the Wood River (Ill.) area to the Ohio Valley.

In today's competitive refined-products markets, refiners are forced to look at the price of a crude stream delivered to their plants—not the posted field prices.

Lack of treating facilities limits refiners in using crude with high sulfur or high salt content. But most refiners that can process West Texas intermediate efficiency can also handle West Texas sour oils.

And those refiners would find a higher realization by processing sweet crudes that can be delivered at the same price—or below—that being paid for sour or intermediate oils.

Any possible adjustments in postings for West Texas oils would have an impact on Gulf Coast crudes, since both compete in the coastal refinery markets.

Some Texas coastal crudes were reduced 10¢ a bbl. by Humble Oil & Refining Co. earlier this month, an adjustment Humble said was made to meet price "being paid by other buyers" in some Upper Gulf Coast fields.

The major influence behind the new adjustments in crude postings is the deteriorating price of gasoline—a condition that has seriously cut into refinery realizations.

The weak market that has plagued the industry during nearly all of 1958 has caused refiners to take a closer look at the realization from each type of crude they use.

There is little or no chance that gasoline markets will gain much strength during the off-peak demand season between now and April.

But there could be some improvement in refinery realizations through stronger markets for heating oil now that winter is close at hand.

Current heating oil prices in the important Gulf Coast market are below a year ago, but there are indications of a good winter demand (PW—Oct.10'58,p11).

Because of the continued emphasis by refiners on realization from

various crudes, many buyers say the days of general changes in crude postings—either up or down—are over.

About the only exception would be a serious international emergency that would result in a sharp hike in demand for domestic oil.

But whether there are general changes in crude prices or not, the downward adjustments in each area where they have been made are, in effect, the same as a general cut to producers.

As Russell B. Brown, general counsel of the Independent Petroleum Assn. of America, noted this week: "The petroleum industry has experienced seven price increases for steel products and five rounds of wage increases during the past 5½ years, when there was only one upward adjustment in crude prices."

The recent price reductions for crude, he said, are "unwise and unwarranted" and will further impair the industry's ability to "maintain exploratory efforts at proper levels."

Gas Flaring Brings Shutdown for Aneth

The Interior Dept. has ordered a shutdown of oil and gas production on federal leases and Navajo Indian lands in the Aneth field of southeastern Utah.

The order, to become effective Nov. 10, was issued at the request of the Navajo Tribal Council, which expressed concern over gas being flared for lack of a pipeline outlet.

The order affects about 97% of the production in the field—about 85,000 b/d from 327 wells.

The major producers in the area include Carter, Continental, General Petroleum, Ohio Oil, Pure, Shell, Sinclair, Superior, and Texaco.

Most of the crude moves through the Four Corners Pipe Line to California, and the remainder enters the Texas-New Mexico system running southeast with connections to the Gulf Coast and Mid-Continent areas.

The U.S. Geological Survey reported that the gas flared amounts to about 64-million cu. ft. daily.

El Paso Natural Gas Co. has been granted a temporary certificate by the Federal Power Commission to build a gas processing plant and pipepline from the field.

But since the certificate was granted, the state of California protested the price (20¢) being sought by gas producers.

In Oklahoma:

No New Field Rules Yet

New field rules for Oklahoma producers probably won't be forthcoming before early next year.

The State Corporation Commission held a three-day hearing on its proposed changes last week, but didn't get through hearing suggested revisions. So it set a two-day continuance for Thursday and Friday of this week, and granted producers until Nov. 10 to submit written suggestions for consideration.

The commission announced its proposed new rules in August (PW—Aug.8'58,p12). It then scheduled the October hearings to give the industry an opportunity to express its views.

Many companies did just that last week.

One of the big revisions proposed last week would grant higher allowables for wells drilled on wider spacing patterns.

Under the plan, suggested by O. P. Nocola, of Phillips Petroleum Co., the commission would grant an 18 b/d allowable for wells up to 2,000 ft. deep drilled on a 10-acre spacing pattern. With wider spacing, the allowable would increase to a maximum of 144 b/d for a single 2,000 ft. well on an 80-acre tract.

Depth would also be a factor in setting allowables. Under the Phillips plan, the allowable for a well 14,000 to 15,000 ft. deep would be 145 b/d on 10-acre spacing (compared to 18 b/d for a 2,000-ft. well). On 80 acres, the allowable would rise to 502 b/d.

There appeared to be considerable support for the spacing-depth proposal, particularly from majors.

Their basic argument is this: Oklahoma has lost some of its crude markets because of prices. Wider well spacing would reduce producer's costs without reducing the total output. Following this reasoning, wider spacing with higher allowables would help make Oklahoma crudes more competitive.

An alternate plan, submitted by an independent, would gear allowables to drilling costs. W. A. Delaney, Jr., of Ada, Okla., contended that this would be fairer than well spacing.

He also urged that condensate wells be brought under proration.

It was also proposed that waterflood allowables be set at the time a waterflood order is issued. The purpose: to enable engineers to tailor the waterflood to the desired rate.

There was lively discussion, too, on whether purchasers should be required to take the full allowables set by the commission.

PLAN '59

Modernization Becomes a Must

PLAN '59 signals PETROLEUM WEEK's biggest editorial project so far—35 pages of data on oil industry planning for the coming year.

The big word is modernization. Plagued by surpluses, oil men are stressing a sharpening of competitive tools, rather than expansion of capacity. The report will show the impact of modernization . . .

In drilling and exploration, where idle rigs are causing considerable sharpening of cost pencils.

In production, now moving rapidly into greater automation.

In processing, where the hottest product-quality battle yet will be fought.

In transportation, where competing forms of moving oil are shaving unit costs to the smallest fractions.

In marketing, where failure to show a "modern front" is spelling merchandising failure.

In management, where complex new questions of finance and organization must be answered.

This integrated package of information will provide for oil's planners a comprehensive report on where and how the industry will be moving.

Issue date: Nov. 7.

Carson Plans to Act on Imports Soon

Government oil planners are hopeful of getting action on a new oil imports formula by mid-November—by Dec. 1 at the latest.

The deadline for industry comments on a new program passed this week. Matthew V. Carson, Jr., oil imports administrator, and his staff are analyzing the comments to determine whether any changes will be made in Carson's original plan (PW—Sep.12'58,p11).

These Interior Dept. officials plan to make their recommendations to the Cabinet committee soon, perhaps next week.

More than 100 answers have come in response to Carson's call for industry comments. After sifting through the pile, Carson's group plans to outline the gist of the industry recommendations, pro and con, for the Cabinet committee's consideration, along with the Interior Dept.'s own views.

Biggest thorn in official Washington's side is what to do about long-established importers.

It's apparent from the comments Carson received that most older importing companies are very reluctant to surrender their historical position and divide imports with newcomers. Some major companies have even threatened to quit the voluntary imports program entirely if the historical approach is abandoned.

These companies say the Carson plan completely ignores the historical pattern. Furthermore, they argue, the plan as it now stands provides a subsidy to small, inland refiners, some of whom can't even use foreign oil.

One major importing company said it would lose 30,000 b/d of imported crude oil under the Carson plan.

Figuring a 90¢-per-bbl. difference in price between domestic and imported crude, the company fears it would lose $10-million a year under the Carson proposal. For this and other reasons, several larger importers want the program to recognize the historic position.

Some companies want to give half of the over-all quota to established importers, with the remaining half to be allocated on a refinery run basis.

Independent refiners, however, generally want to stick with the present Carson plan, although they want an earlier activation date than Jan. 1, 1960, when the proposed program would be in complete effect.

Another problem for government officials is whether the selling or trading of imported oil should be permitted.

Carson's basic plan would allow any normal disposition of crude oil and unfinished oils once a shipment had been imported and duty paid in the name of the importer.

But many in the industry have asked for a requirement that crude oil be processed at the importer's own plant.

This, some companies argue, would eliminate refiners who have not previously intended to import oil, and who would accept a quota only to be able to sell or trade the foreign crude.

There is some support for an idea to allocate imported oil to a given refinery—not to companies. Advocates of this change have insisted that this approach would prevent some companies from getting more than their fair share of imports.

The proposed exemption for asphaltic crude is also a hot subject of debate. According to one government official, about half of the group commenting on the plan wants to maintain the asphalt exemption; the other half would abandon it.

The government is also faced with requests to curb imports of all petroleum products. Many companies and groups have asked that all products be brought under the voluntary program. Some others wanted all products except residual fuel oil controlled.

There's a controversy, too, over whether to use refinery capacity or throughput as a basis for the allocations.

Those who want to use capacity as a criterion for dividing imports argue that, otherwise, refiners will step up runs, create an oversupply of gasoline, weaken markets, and cause distress selling.

But the group defending the use of refinery runs counter that a fictitious picture would result by using capacity, since many refineries have idle capacity which could easily be figured in to boost a company's allotment of imports.

Only one aspect of the new plan has drawn little or no opposition: exemptions for Midwestern refiners using Canadian crude.

One government official said this week that he had found no complaint against Carson's initial proposal for allowing several Upper Midwest companies to use their regular amount of Canadian imports.

Aside from that exception, almost every other phase of the plan has come under attack.

Modern Version of Pipeline Walking

With the advent of underwater pipelines, the need has arisen for underwater inspection and repairs. Here a diver checks the connections of a line used in the Cape Verde Islands to unload tankers for faster turn-arounds.

DESK & DERRICK LEADERS at the annual convention last week included (from left to right): Jo Landusky, Hobbs, N. M.; Irma Cline, Wichita Falls, Tex.; Ellen Vaughn (new president), Shreveport, La.; Maxine Hacke (outgoing president), Tulsa; and Doris Allen (secretary), Tulsa.

DELEGATES FROM FAR AND NEAR attended the convention. Among them were: Lois W. Giltner, Lake Charles, La.; Florence Wood, Winnipeg, Manitoba; Lillian Ruud, Bismarck, N.D.; Betty (the Hat) Sutherland, Calgary, Alberta; and Margaret Bishop, Edmonton, Alberta.

Women Can—and Do—Aid Oil Industry

A stronger role in oil industry affairs appears to lie ahead for the Desk & Derrick Clubs, whose emphasis as a group on a serious, educational program has in the past few years made the organization a growing factor in the oil picture.

Last week in Los Angeles, some 900 Desk & Derrick members listened to industry leaders lay out new challenges for them, heard praise for their past accomplishments, and selected leaders for the coming year.

The occasion was the seventh annual convention of the Association of Desk & Derrick Clubs of North America, representing 119 Desk & Derrick Clubs in the United States and Canada, with a membership of approximately 9,500 women employed in the oil and allied industries.

Two areas of activity for Desk & Derrick members—"human relations" and politics—were suggested at the group's Los Angeles convention by A. C. Rubel, president of Union Oil Co. of California.

The two areas of activity, Rubel said, might pay dividends in improved public regard for the oil industry.

Rubel said there is a wealth of material in every oil community in the nation underscoring oil's contributions for the betterment of mankind, and that such material could be publicized in a dignified way and talked about by people in the industry—such as the D&D members.

"With all the emphasis on mass media these days—newspapers, magazines, radio, and television," Rubel said, "we very often overlook the fact that the greatest public relations instrument in the world is the face-to-face communication of one person to another over the back fence or the bridge table. And I think it's a well-established fact that the female of the species is more effective in the use of this particular public relations instrument than the male.

"The second thing I think our industry must do," Rubel said, "is to enter positively and aggressively into politics at the city, county, state, and national levels—not furtively or apologetically, but openly and objectively.

"As an operator in an oil field or at a refinery, we exhaust every effort to accomplish a saving in operating cost. But a councilman, a supervisor, or an assemblyman or congressman, with little or no knowledge of the subject and often with no guidance, can enact measures that cost us millions of dollars, for which our customers, the public, must pay.

"We therefore should—and must —protect ourselves and our customers, or we will be submerged in the welter of pressure groups which, under present political conditions, so strongly influence legislative action at all levels.

"If each of you could see your way clear to participate more actively in politics, with an eye toward defending this industry of ours from the demagogues who are attacking us, I know your combined accomplishments would be great indeed," Rubel concluded.

ELLEN VAUGHAN will become the new president of D & D on Jan. 1, succeeding Maxine Hacke.

Leonard R. Seaman, president of Intex Oil Co., told Desk & Derrick members they could each make a major contribution to a program of education "designed to equip us to understand ourselves and our neighbors, and to attain some universal objectives that are not dependent upon 'good times' and 'security.'"

"The oil industry of the United States has enjoyed a phenomenal growth in the political and economic climate of this country," Seaman said. "For almost a hundred years, our great industry has met and mastered a whole host of problems, within and without the industry.

"One might conclude from an examination of the oil industry record that we are big enough and strong enough and smart enough to accomplish any objective, anywhere, any time. Don't buy this yet. It does not follow that, because we have learned a great deal about the technology of our industry, progress is assured."

Pointing to recent events in Iraq, Seaman said, "There lies our weakness. Strong as a bull in our own back yard and weak as a calf on the other side of the fence. The mysteries of the Middle East are still as dark on our horizons as the ancient Arabian

Nights. There lies our great challenge today.

"We have a great deal to learn before we can communicate on an understanding basis with the Middle East and other remote parts of the world. Our education is only partially secured, and our progress will never be assured, until we learn to live together in the neighborhood of the whole world."

Another educational feature of the convention was an oil industry panel, "Point Barrow to Peru," on oil prospects from Alaska to South America.

Mortimer A. Kline, Los Angeles oil attorney, served as moderator. Panel members were Eugene L. Davis, consultant; E. E. Pyles, vice president, Monterey Oil Co.; and Irving T. Schwade, Pacific Coast regional geologist, Richfield Oil Corp.

The association itself took steps to emphasize further its stress on an educational program.

It passed a resolution specifying that an applicant be made to realize that the chief purpose of the club is education—and that it is not a welfare, civic, or social organization.

In another resolution, it asked individual clubs to review their activities to make sure they are directed toward the educational goal.

Desk & Derrick is "fulfilling its destiny as a major oil industry association," Maxine R. Hacke, outgoing president, told members.

"An exciting challenge awaits every member," Miss Hacke said. "One has only to read a few short phrases defining our purpose to see what that challenge is:

" 'The purpose of the association shall be to promote among the women employed in the petroleum and allied industries, through informative and educational programs, a clearer understanding of the industry which they serve, to the end that the enlightenment gained thereby may increase their interest and enlarge their scope of service.'

"The petroleum industry is gaining by the increased knowledge and capacities of its women employees," Miss Hacke said, "because of the greater service oil women may render it."

Miss Hacke said a review of D & D work during 1958 revealed an impressive record of oil industry programs and trips into the field to view oil operations.

Irma Cline, immediate past president, told Desk & Derrick members, "The only limits to your attainment of personal goals are those limitations with which you surround yourself."

West Coast Beckons Gas

The West Coast gas market is hanging like a ripe plum. Efforts to grab it are creating a strong potential demand for gas supplies from Texas and Louisiana.

Two pipeline firms are pushing efforts to transport Texas and/or Louisiana natural gas to the growing West Coast market.

Tennessee Gas Transmission Co. reportedly is trying to line up gas from producers in the two states for sale to a California industrial purchaser.

Meanwhile, Transwestern Pipe Line Co. is pressing for Federal Power Commission approval to move West Texas gas to the West Coast.

The competition for gas may result in better prices for producers.

TGT, according to industry sources, was talking to producers in West Texas this week, and there were reports that offers might also be made on the Texas Gulf Coast and in the Bastian Bay area of Plaquemines Parish, La.

The Bastian Bay reserves, estimated at 2-trillion to 3-trillion cu. ft., have been particularly attractive to prospective buyers for some time (PW—May 2'58,p15). Major owners are Tidewater, Gulf, and Pan American, with Phillips holding a smaller amount.

Prices of 20¢ to 21¢ per thousand cu. ft. were being talked in West Texas, it was said, but no flat purchase offers were reported. The Bastian Bay gas probably would be higher-priced.

Potential customer for the gas being sought by TGT reportedly is Southern California Edison.

Action by a state agency in California has provided a boost for the plan of Transwestern Pipe Line Co.

The California Public Utilities Commission has approved construction of an intrastate line to receive deliveries from Transwestern if Transwestern gets an FPC O.K. to move West Texas gas to the Coast.

The California PUC awarded contingent authority to Transwestern's customer, Pacific Lighting Gas Supply Co., for construction of 128 mi. of 34-in. line at a cost of $18,960,000.

"This means," said a source close to developments, "that the state recognizes a market for the gas and reasonableness of the price."

Transwestern plans a 1,305-mi. line from Texas to Topoc, Ariz., on the California border.

Pacific Lighting would sell to its two affiliates, Southern Counties and Southern California Gas Co.

Transwestern will sell its gas to Pacific Lighting at 45¢ per thousand cu. ft. It hopes to commence deliveries in late 1959.

Initially, Transwestern would deliver 350-million cu. ft. of gas daily, with a potential line capacity of 640-million cu. ft. daily.

Tennessee Gas Transmission Co.'s tentative plan, according to industry sources, includes building a 34-in. line with a potential capacity of 650-million cu. ft. of gas daily. Delivery would start in 1961 on a "for-hire" basis.

The reserves would be purchased by Southern California Edison. TGT would merely haul the gas as a service for a fee—a type of transaction that has been gaining in favor (page 34).

This is known as a "nonjurisdictional sale"—one that isn't subject to Federal Power Commission regulation on the price paid for the gas because the final customer buys the gas before it leaves the state in which it is produced.

Lining up of the reserves, it was pointed out, would give Southern California Edison additional fuel for expansion purposes.

It was also noted that Los Angeles air pollution control authorities have indicated they'd like to see more gas used for fuel to cut down on smog conditions.

There are indications that potential California industrial users are making other gas-seeking moves.

A representative of one transmission company (which is not involved in the current maneuvering) says his company has been approached by California utilities to help locate reserves for direct purchase. But, he adds, his company found that the same utilities were approaching other transmission lines, as well.

The "race" to supply the California markets may be influenced to a considerable extent by decisions on the importation of gas from Canada.

Westcoast Transmission Co. and Alberta & Southern Gas Co., who have had rival proposals before the Alberta Conservation Board, have now agreed to a joint effort on part of their plans (page 16).

There still remains, of course, a decision by the Alberta board and by FPC.

What's New / IN THE INDUSTRY

Two Canadian gas pipelines, both aiming for the California market, have decided to use some joint facilities, as was more or less suggested by Alberta's Oil & Gas Conservation Board (PW—Sep.19'58,p18). Westcoast Transmission Co., Ltd., and Alberta & Southern Gas Co., Ltd., said they would build a single pipeline from the Alberta border to the U.S. border. The two will form Alberta Natural Gas Co. to operate the line, but each will continue to line up gas contracts with producers independently.

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At least one oil company—The Texas Co.—expects higher capital expenditures in 1959. Augustus C. Long, chairman, says the company's outlays this year will amount to $520-million, compared with $481.7-million in 1957, and that "they will probably be slightly higher in 1959."

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The Mandan (N. D.) refinery of Standard Oil Co. (Ind.) was back on stream this week following a strike settlement. The company and Local 225, International Union of Operating Engineers, reached "exactly the same" contract terms that had been offered before the start of a strike Sept. 12. The only difference was extending the contract to two years instead of one year, with a wage reopening clause applicable in the second year.

At Indiana's Whiting (Ind.) refinery, the Research & Engineering Professional Employees Assn., representing some 500 employees, filed an unfair labor practice complaint with the National Labor Relations Board. The union charged that Indiana granted individual wage increases, based at least in part on general economic factors, to represented employees while bargaining was under way for the general increase. The union is one of four negotiating with the company under a wage reopening clause in their two-year pacts.

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The way has been cleared for a merger of oil workers with a chemical union. Delegates to the International Chemical Workers Union convention approved a plan to merge eventually with the Oil, Chemical & Atomic Workers Union. The latter group had previously approved a plan of merger, which is to be presented at next year's convention of both of the CIO-AFL unions.

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The U.S. Supreme Court will hear the Justice Dept.'s charges that three oil pipelines paid excessive dividends to their parents. The companies—Arapahoe Pipe Line Co., Service Pipe Line Co., and Tidal Pipe Line Co.—won a battle last March in Federal District Court at Richmond, Va. In appealing to the Supreme Court, the Justice Dept.'s main argument is that the valuation base used by pipelines to compute dividends for their parents should not include the value of property used but not owned by the lines. The contention is that the dividends paid exceeded the 7% limit set by the Elkins Act consent decree.

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E. V. McCollum, of Tulsa, has been elected president of the Society of Exploration Geophysicists. Other officers: William M. Erdahl, Tulsa, vice-president; and Robert Dyk, San Francisco, secretary-treasurer. L. Y. Faust, San Francisco, was reelected editor. The officers were chosen at this week's annual meeting of the society in San Antonio.

INSIDE *Slant*

STRONG PERSUASION

It's no wonder that some within the industry object to compliance with the voluntary imports program in order to be eligible for product sales to the government.

Particularly when you consider the total expenditure of the Military Petroleum Supply Agency in one year for petroleum products.

For the past fiscal year —July 1, 1957, through June 30, 1958, the total value of the 2,130 contracts written by MPSA amounted to $1.2-billion.

Contracts at the rate of $5-million each working day of the fiscal year is strong persuasion on the part of the government for compliance with its imports program.

There is every expectation that this figure will increase during the current fiscal year.

An example of the increased government purchases is best reflected in requirements during the Lebanese situation.

In an eight-week period during that emergency, purchase requests were received for 8-million barrels of bulk fuel, chiefly for the Navy, and 600,000 gallons of packaged lubricants and fuels above regular programs.

Leroy Menzing
EDITOR

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for more than a quarter century"

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Looking Ahead in Washington

McGraw-Hill
Washington
Bureau
October 17, 1958

Take a look at next month's congressional elections. The biennial voting is only slightly more than two weeks away. The outcome of the elections will determine Congress' make-up through 1960, and most of the senators elected will be in Washington through 1964. All 435 House seats and 36 Senate seats are at stake.

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The expected outcome of the voting may hurt the petroleum industry on some issues. Right now, it appears that the Senate's antidepletion bloc could be increased after November. In the House, several gas bill supporters are retiring and might be replaced by some so-called "consumer" votes.

The House Interstate Commerce Committee will be shaken up, for example. The Republican side of the committee, where several gas bill votes were certainties, will undergo a big change. The ranking GOP member of the committee, Charles A. Wolverton, of New Jersey, has quit. So has the second-ranking Republican, Joseph P. O'Hara, of Minnesota, who cosponsored last session's gas bill. Next in line was Robert Hale, of Maine, who has already been defeated for reelection by a Democrat. Fourth man in the Republican committee lineup was John W. Heselton, of Massachusetts, an arch enemy of the gas legislation, who is also retiring. So next year's top Republican on this key house committee probably will be John B. Bennett, of Michigan, who is sponsor of a bill to require gas pipeline companies to serve communities if requested to do so.

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The Democrats are expected to retain easily their control in both houses. You will hear Democratic noises about a gain of 40 seats or more in the House. Republicans privately are conceding about 20. Best betting is that the actual Democratic gain will lie somewhere in between—perhaps 20 to 30 seats, unless there is a landslide.

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In the Senate, the GOP stands to lose several seats. Losses are most likely to come in California and Michigan, and in West Virginia, where both Senate seats are open. States where Senate elections may well be a toss-up include New York, Connecticut, Delaware, Arizona, Minnesota, Indiana, Maryland, New Jersey, and Pennsylvania. All these seats are now Republican.

The Democrats are fearful of losing only one seat they now hold, in Wisconsin. Sen. Proxmire is seeking a full six-year term. If elected, he will continue to be a strong foe of the oil and gas depletion provision. And some observers feel Proxmire still has an edge over his opponent, Republican Roland J. Steinle, a former state supreme court justice.

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Election campaigning may delay the Administration's action on a new oil imports plan. Several key members of the Cabinet committee on imports are on speech-making trips around the country. Their absences from Washington may keep the committee from doing much work on any new plan until after the November elections. Furthermore, the Administration may feel that any action on imports just before the election might be used as campaign fodder in some states.

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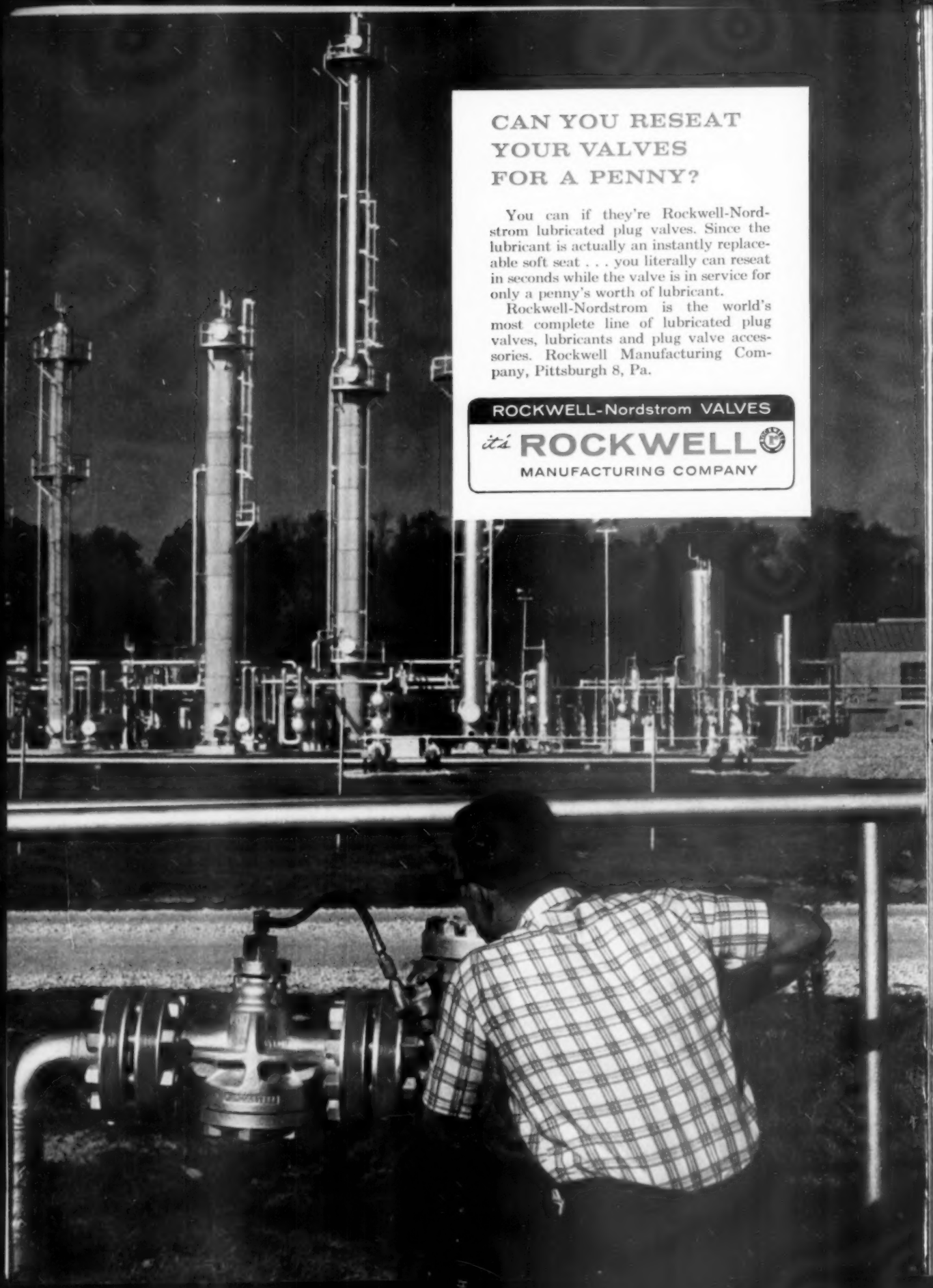

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Black Warrior: A Shallow Puzzle

What's holding back the development of the deep south's Black Warrior Basin? Oil is there, say oil men.

Some geologists say the rocky subsurface underlying northwestern Alabama and northeastern Mississippi (map) is "loaded with oil and gas." But 250 tests drilled since the turn of the century in the 10,000-sq. mi. basin still say otherwise, at least from a commercial standpoint.

Reasons for the holdback: There's been a lack of money for planned drilling programs; and technical knowledge of the complex basin is poor. Technology, say many, is the key to the basin's future.

The biggest problem, say geologists, is to break open the tight sands.

"There is no reason why, with the proper technical equipment and advice, this should not be a major producing area," says Robert MacElvain, Alabama state petroleum engineer. "In many respects, it is very similar to the Illinois Basin."

Drilling is shallow, averaging 1,500 ft. The deepest formation penetrated has been the Knox dolomite (Cambrian-Ordovician), at 4,700 ft. This section has never been penetrated completely.

Walter B. Jones, Alabama state geologist, says the use of fracturing and acidizing for limestones would probably break loose the crude that repeatedly has been cored in tight formations.

Also, he says, too many tests are put down without regard for structure. Most of the tests are drilled with cable tools and restricted finances. Alabama drilling reports on the Black Warrior show a constant struggle for funds, says Jones.

Funds are now being raised for a test of the Wiley Dome, a big structure in Tuscaloosa County, Ala.

Numerous oil and gas shows were cut in previous wildcat tests on the dome.

Geologists have recommended that Wiley Dome Drilling Syndicate drill the first test in section 26-17s-9w, on the downthrow or southeast side of a fault. Southern Natural Gas Co. No. 1 Phelan Shephard, 1¾ mi. south of the proposed test site, found 22 oil shows, 24 bleeding oil spots, 2 bleeding oil and gas spots, 1 bleeding gas spot, and 2 oil stains, all in a 1,000-ft. interval between 1,774-2,789 ft.

The dome arches over about 10 sq. mi.

Independents are continuing the search in other parts of the basin, with five rigs now operating.

Two wells are being tested, one well is shut in, and one new location has been made. Last year at this time there were six rigs operating, one well testing, and one location made.

So far this year, 20 of the 73 drilling permits issued in Alabama have been for tests in the Black Warrior Basin, compared with 19 out of 69 issued last year.

Two tests in Marion County, Ala., may help clear the picture in that part of the basin.

Charles Morris No. 1 Howard & Evaline Self, ¾ mi. west of the one-well White House gas field, was drilled in February and perforated. Because of a faulty cement job, the well had to be reperforated and acidized in March. Swabbing failed, and the test was shut in April. It was fractured in July, and another swabbing produced salt water. Later in the month the test began to flow salt water and flare gas. It continues to do so today.

The latest attempt at expanding the White House field is Joe G. Strahan No. 1 U.S. Pipe & Foundry Co., 1 mi. southeast of the field. The hole was drilled to 1,664 ft., then plugged back and acidized at 885-935 ft. The test currently is shut in with no results announced.

Though actual oil and gas production from the basin has been almost nil, scarcely a test has been drilled that hasn't had oil or gas shows.

Fifty years of drilling have uncovered only two small gas fields in the Alabama portion of the basin, both in Marion County.

The Hamilton field produces dry gas from the Bethel (Mississippian) formation at 1,850 ft. The field now has three wells. The one-well White House field, 17 mi. east, produces gas from the Lewis sand, another Mississippian formation, at about 1,600 ft. White House Gas and Development Co. No. 2 Pearson flowed 1,405,000 cu. ft. of gas per day.

The Mississippi portion of the basin has been a little luckier. Eight oil or gas fields have been discovered in four counties, among them the Muldon, Aberdeen, and Trebloc fields. But for a basin the size of the Black Warrior, the record so far has been poor.

New Geophysical Tools More Sensitive

There now are geophysical instruments so sensitive that they can record tidal action in solid rock and the weak magnetic field on the moon.

A new gravity meter that can measure tidal forces in solid rock was described this week by H. N. Clarkson, of La Coste & Romberg, at the 28th annual meeting of the Society of Exploration Geophysicists, in San Antonio.

Though it is well known that the tides in the ocean are caused by gravity pulls of the moon and sun, said Clarkson, it is not so well known that this force is also powerful enough to have some effect on the solid rock crust of the earth, even though this effect is microscopic compared to the tide in the ocean.

The gravity meter capable of measuring this force is ten times as sensitive as ordinary instruments. It can measure one part in 1-billion, compared to one part in 100-million.

Another new gravity meter, though only about one four-hundredth as sensitive as ordinary instruments, can be mounted on a ship and can take continuous measurements as the ship moves, said J. Lamar Worzel, Columbia University, and Lucien La Coste, of La Coste & Romberg.

In contrast, they said, the more sensitive instruments now in use in the oil industry must be set on the ground for a minute or more, on a spot free of local vibration, and can make one measurement for that particular spot only.

A magnetometer—which as yet has no commercial application—may be the first to measure the lunar magnetic field from a rocket, says Thomas L. Skillman, of the U.S. Coast & Geodetic Survey, Fredericksburg Magnetic Observatory & Laboratory, Corbin, Va.

The rubidium-vapor magnetometer is suitable for continuous recording, particularly where measuring low value or weak magnetic fields. It is expected to be used in the first rockets to the moon, because the magnetic field of the moon is far weaker than that of the earth.

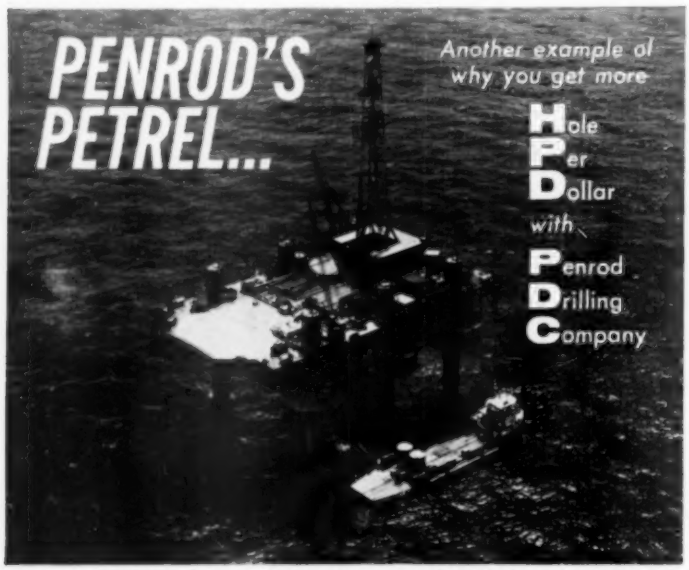
A magnetic-tape seismograph recording of an atomic explosion has shown that it is possible to detect underground tests of A-bombs.

A recording was made of the September, 1957, A-bomb test in Nevada, says F. G. Blake, of California Research Corp. This recording was made 370 mi. from the shot point. It is well known, he said, that air and ground-surface explosions are easy to check. A means of checking underground tests is thought to be the key to the successful halting of atomic tests by the U.S. and Russia.

A means of predicting how far, and in what direction, a pay sand will remain structurally high enough and porous enough to hold oil has been developed, says George E. Pickett, of Shell Oil Co.

One sure but expensive way of mapping porosity is to drill tests around a discovery until a ring of dry holes gives the answer, he said.

But a means of predicting porosity from acoustic and continuous velocity logs has been developed. The method consists of an empirical equation that is applied to acoustic or velocity log data. On clean sands, the equation predicts porosity with usable precision, as verified by comparison with core analyses of the same sands, he said. The results are not accurate, however, in shaly zones.



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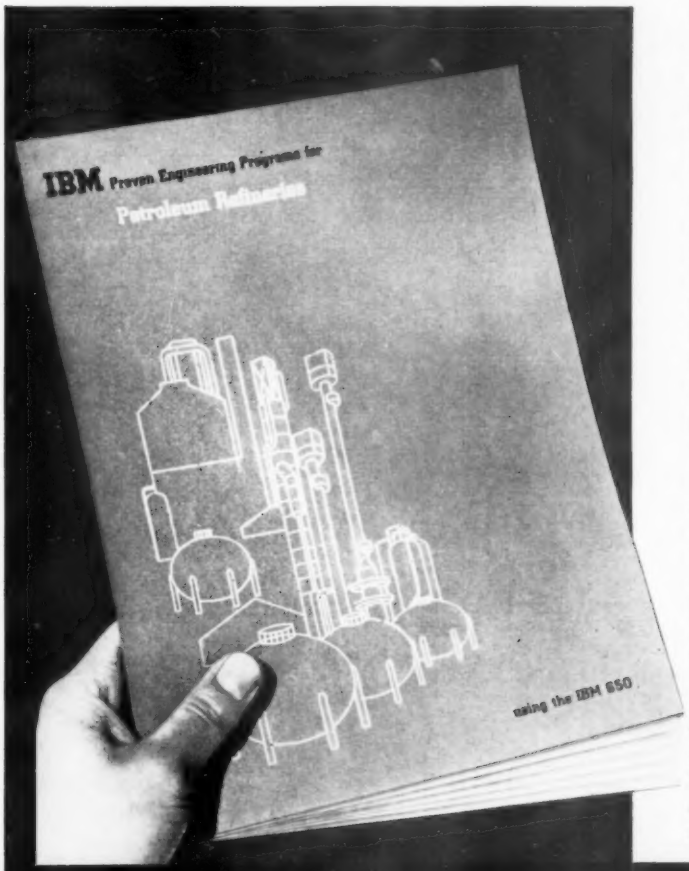

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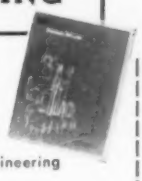

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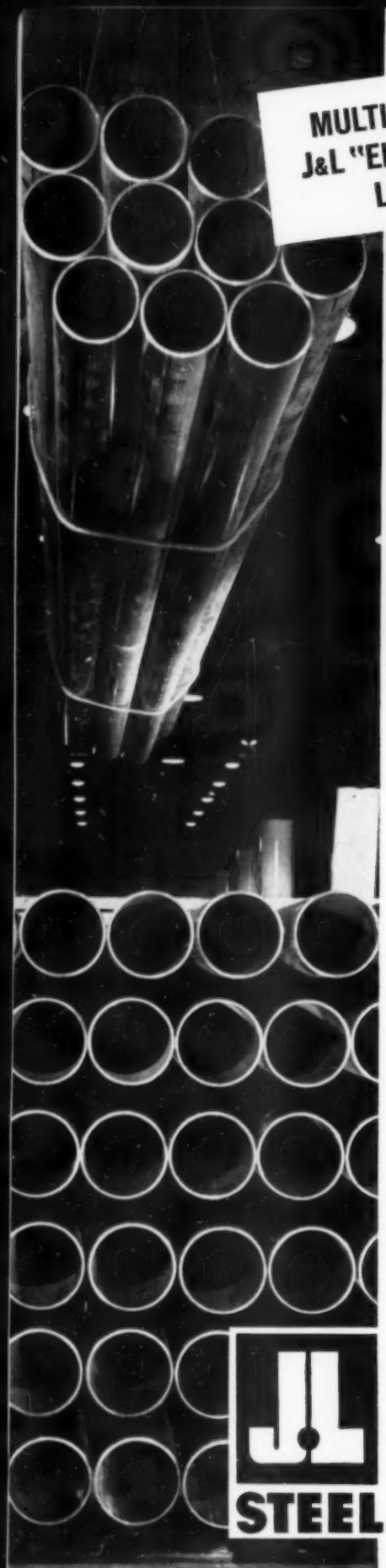

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Welders on this Jayhawk Pipe Line Company installation report J&L Electricweld pipe is easy to weld. They installed 3109 tons of 10¾-inch O.D. and 3172 tons of 12¾-inch O.D. Electricweld pipe in this line. Both sizes are in .250 inch wall and Grade X46.

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Canadian Wildcatting—Is Profitable

Ten years of drilling in Western Canada indicates that exploring new areas is more profitable than drilling in areas where production already has been found, according to a Sun Oil Co. study.

The Canadian division of the company recently completed a study of oil finding, developing, and lifting costs in the four Western Canada provinces.

The study analyzed the cost of acquiring reserves through both primary (new area) and secondary exploration. Though secondary exploration was important, primary exploration was the most rewarding, G. E. Dunlap, division manager, told a recent meeting of the Alberta Society of Petroleum Geologists.

Primary exploration was defined as entering new areas where little is known of petroleum prospects, yet where, if oil is found, holdings will give sufficient ownership of the discovery to justify the large expenditures required.

Secondary exploration was defined as the acquisition of holdings after discovery, and intensive exploration to locate the types of features that have been shown to exist.

Although new-area exploration was found to be the cheapest over-all, the cost of finding oil differed substantially from province to province.

Alberta reserves have been the most expensive to locate, British Columbia reserves the cheapest.

The reason why exploration costs have been the highest in Alberta is that, for Sun, exploration in the province began in 1948 and 1949 after the discovery of the Leduc and Redwater fields, so that the bulk of exploration fell into the secondary category.

Holdings in other provinces were taken before any discovery was made, and thus fell into the lower-cost primary exploration category. "Our studies indicate," said Dunlap, "that primary exploration has been the more effective and rewarding program, more so than our secondary exploration efforts in Alberta."

Since the company first entered Canada, the average cost of acquiring reserves has been about $1.50 per bbl., said Dunlap.

Average oil-finding cost ranges from $1.78 per bbl. in Alberta to $1.67 in Saskatchewan, $1.02 in Manitoba, and 49¢ in British Columbia. These figures are not the actual finding and development costs for Sun, but their relative values are accurate, said Dunlap.

The low British Columbia figure must be qualified, he said, because, while both proven and probable reserves are included, as in other provinces, British Columbia is still in the early exploratory stage. But if the costs of development of British Columbia reserves were added in, the total would rise to 88¢ per bbl., still less than half of the Alberta figure.

Finding costs were defined as all money spent on exploratory expense, lease bonus and rentals, land expense, dry hole costs, and an allocation for overhead. Sun's practice has been to amortize certain of these costs over five- to ten-year periods.

Development costs included the expense of drilling and completing producing wells, the costs of lease and well equipment, and overhead.

Lifting costs comprised cash operating charges, plus overhead.

Probable reserves were included in estimating costs on the ground that, being estimated conservatively, they offered a realistic measure of company accomplishments.

Gas reserves were included in the analysis by means of a formula which converted gas reserves to "barrels" on a value basis.

Exploration costs, however, are not the sole consideration, said Dunlap. "Often," he said, "it is wise to continue work in an area where finding costs are high. But, with all other factors equal, funds should be put into an area where the finding costs are lowest, with the belief that the same techniques and same program will yield comparable results from future investments."

The most important factor, the study showed, is the necessity for continuity in an exploration program.

Exploration in unproved areas, in particular, could not have a reasonable chance of economic success unless carried on as a long-term operation, said Dunlap. Equally important, he said, is diversification of effort, with continuity of work proceeding from one area to another.

It was estimated that costs would have been lower if farmouts had not been necessary to develop an area.

Sun took a look at what its costs for reserves would have been if the company had done all the work itself. Said Dunlap: "We would not have farmed out had the necessary funds to conduct the work been available."

In Alberta, the company's cost would have been $1.68 per bbl., a drop of 10¢. In British Columbia, costs would have been 32¢ per bbl., or 17¢ less, and in Saskatchewan, costs would have been $1.68 per bbl., or 1¢ more. Over-all, costs would have been $1.14 per bbl., or 36¢ less. This represents a decrease of 24%.

Still unknown is whether operations are more rewarding on large blocks or on scattered leases.

Company holdings in Alberta and Saskatchewan consist of both, though most of Sun's production to date has been developed on scattered leases. But the final answer to this question, said Dunlap, is "a study in itself."

The acquisition of proven or semiproven acreage was, in itself, no guarantee of finding oil, the study showed.

Over the past ten years, the company has added 7-million bbl. of reserves in Canada at a cost of only $1 per bbl. through the purchase of leases in proven fields, and in some instances, in semiproven areas.

The method has been profitable, said Dunlap. "Had we not added reserves in this way, over-all costs would have been $1.57 per bbl., or 7¢ higher. In Alberta, costs would have risen 25¢ to $2.03 per bbl."

But in Saskatchewan, reserves added by this type of purchase did not lower or raise the over-all oil finding costs for the province. The situation in Saskatchewan would have been better, said Dunlap, "except for one unfortunate purchase in the Nottingham field," where the porosity disappeared under the tracts purchased.

"This is good evidence," he said, "that even the purchase of semiproven tracts is no sure-fire method of adding to reserves."

"Nevertheless," he added, "if proven or semiproven leases can be acquired and developed at a price less than your finding costs in new areas, and the cost-price relationship is favorable, it is an important method of keeping the reserves of a division or company in balance with production, or the depletion of reserves."

The purpose of the study was to determine what factors or procedures seemed to have the greatest influence on costs. Data on these, it was hoped, would provide a better statistical indicator of the long-range success of company operations.

"Finding costs are an effective tool of management in reaching a decision as to where it can best employ the funds available, so as to determine which will give the best return," said Dunlap.

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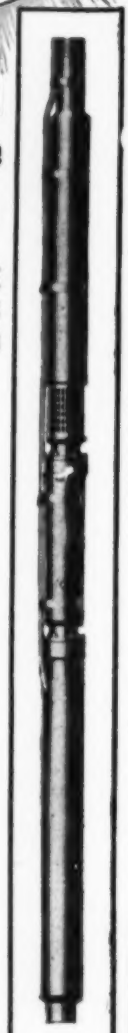

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Offshore Oil Men to the Rescue

The oil industry is now ready to back up the U.S. Coast Guard in rescuing planes and boats in distress off the Louisiana coast.

Under a program designed by the Surface Air Rescue Committee of the Offshore Operators Committee, planes, helicopters, and boats of most of the major oil companies have been put at the disposal of the Coast Guard when special assistance is needed.

The industry and the Coast Guard have cooperated in listing available emergency facilities and in mapping the oil industry installations along the Louisiana coast.

A map has just been drawn showing the coast of Louisiana from Chandeleur Island west to Sabine Pass. The map includes the names of offshore leasing areas, the numbers and locations of lease blocks within these areas, and the permanent drilling and production platforms erected in the lease blocks.

From a legend on the map, it is possible to tell at a glance the company to which a platform belongs, whether a platform is intermittently or permanently manned, and if a helicopter can land on its deck. Airports, seaplane ramps, company bases, and Coast Guard stations are also shown.

The Surface Air Rescue Committee has also printed a booklet listing the surface and air facilities and emergency repair and first aid equipment available at various company bases along the coast.

The Offshore Operators Committee believes the program will work efficiently if and when it is needed.

Here's how the plan might work:

Suppose an oil company boat operating in the Eugene Island area has a flash gasoline fire that knocks out its engine and injures a crewman.

The operator knows that a few minutes before the blast he passed Shell Oil Co.'s platform marked Eugene Island, Block 188. He radios his home base, then switches to the Coast Guard's distress frequency 2182 and gives an emergency or "May Day" call.

From the speed and course followed since passing the platform, he estimates that he is in Eugene Island, Block 164. He reports the type and color of his boat, the number of persons aboard, and tells of the fire and the injured crewman, winding up with his name and radio call letters and stating what action is being taken until help arrives.

The Coast Guard, consulting the map, sees that the Shell platform is about 7 mi. from the boat, that there is a permanent crew aboard, and that there is a heliport.

From a listing in the booklet, it will call the Shell man in Morgan City, La., and request that a boat be sent from the platform to pick up the injured man, and to render all possible aid.

It then dispatches the nearest helicopter to the platform to pick up the injured man there.

The offshore group believes that the system puts a great number of vessels and planes on emergency call for the Coast Guard. It estimates that there are 174 boats, 53 airplanes, and 23 helicopters listed by participating oil companies at various locations along the Louisiana coast, which could be summoned if needed.

Subsidence Control Path Open

The path is now cleared for the submission of repressurization plans for California's subsiding Wilmington field.

Such submissions may come in the form of a field-wide plan by one of the operators, or, more likely, by fault block units.

The path has been cleared by the completion of a map that outlines areas that may be earmarked for repressurization.

The map was prepared by E. H. Musser, state oil and gas supervisor.

It defines a subsidence area covering an estimated 30 sq. mi., taking in virtually all of the Wilmington field (with the exception of a very small area in its northwestern corner), and most of the estimated undeveloped portion of the field lying offshore.

There is a possibility of compulsory unitization for repressurization, if 65% of the operators in a particular fault block, or other such area, wish to unitize and cannot get others in the proposed unit to come in.

In such a case, the state oil and gas supervisor would be empowered to make a detailed study to determine if the proposed plan is necessary to further the purpose of the state's 1958 subsidence-control act, i.e., to arrest subsidence.

The approval of the supervisor would make unitization mandatory.

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Industry too has used Sikorskys as passenger and cargo vehicles, and as flying cranes. The petroleum industry, for instance, has flown Sikorskys in the search for oil and as around-the-clock transportation to operating sites offshore, in jungles, and in other hard-to-reach areas.

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What's New / IN EXPLORATION, DRILLING, PRODUCTION

California Contractor Reenters Drilling Field

After a year on the sidelines, Gene Reid Drilling, Inc., Bakersfield, Calif., is going back into the production and contract drilling business.

A year ago, directors of the company voted to dissolve, basing their decision on "the depressed condition of the California oil business."

Gene Reid, president, says the reactivated company will restrict contract drilling work to the operation of two rigs.

•

Northern Pacific Changes Lease Policy

Northern Pacific Ry. has announced changes in leasing policy that will affect oil and gas rights held by the land-grant railroad.

The company will now grant leases without short-term drilling commitments, on a bonus and rental basis. The bonus will be negotiated.

The company also will offer exploration options.

The railroad will not require the optionee to submit results of geophysical work unless the lease option with right of selection is exercised. The company holds 8-million acres in Montana, North Dakota, and Wyoming.

•

Leasing News

The Alberta government will offer Nov. 13 drilling reservations, on 20 parcels scattered throughout the province.

Tracts to be offered total 139,120 acres.

On Oct. 28, the provincial government will offer 294,091 acres, chiefly in the northern part of the province.

The Bureau of Indian Affairs will offer 92 tracts in Oklahoma for lease Nov. 4.

Most of the acreage, totaling 7,552 acres, is in the northeast and eastern parts of the state.

A total of 17,614 acres of Montana school lands will be offered for lease Oct. 30.

Of the 37 tracts, 22 are in Teton and Lewis & Clark Counties, in the Disturbed Belt area in the northwest central part of the state.

Other acreage to be offered is in Powder River, Wheatland, Pondera, Toole, Richland, and Big Horn Counties.

Some 34,894 acres of Ute Indian tribal and allotted lands in Duchesne County, Utah, will be offered for lease Nov. 4.

Standard Oil Co. of California requested the lands which are in the Neola area.

Honolulu Oil Corp. has asked the Texas Railroad Commission for approval of a unitization agreement and pressure maintenance program for the Cope field unit, Irion, Sterling, and Tom Green Counties, West Texas.

The pressure maintenance project calls for water injection into 12 wells. A total of 43 producing wells have been drilled in the field. The company estimates that additional recovery over primary means will be about 150%.

•

All but one of the 33 tracts offered Oct. 2 by the Laguna and Acoma Pueblo Indians were leased.

The offering consisted of lands in northern New Mexico, generally south and west of activity in the San Juan basin.

Bonus bids averaged $2.90 per acre on the 19,713 acres leased.

Skelly Oil Co. was high bidder at a lease sale of Kiowa Indian lands in Oklahoma Oct. 1.

Skelly paid $31.76 per acre for an 81-acre tract on the eastern edge of the Beaver oil pool, Stephens County.

Total bonus at the sale amounted to $61,281, on 10,285 acres sold.

•

The Saskatchewan Dept. of Mineral Resources will hold a hearing Oct. 28 on an application to use small-diameter production casing in medium- and light-gravity pools in the province.

Stekoll Oil & Gas Co. has asked for the permit. The department, up to now, has restricted small-diameter (2⅞-in.) completions to marginal properties.

Automatic custody transfer equipment is now being used successfully to move crude from wells to pipelines in the Edmonton (Alta.) area.

The ACT system has completely eliminated manual control and made possible a nonstop flow of crude in the Redwater and Excelsior fields, north of Edmonton.

The program culminates six years of research and experimentation by Imperial Oil Ltd., with push-button methods finally applied to all stages of crude flow from the wells, through tanks, separators, and treaters, and into the pipelines.

•

Richfield Oil Corp. has taken an option on 23,000 acres of oil shale leases in Uintah County, Utah.

The shale area reportedly has as high as 100-billion bbl. of shale oil in place. The option was taken from Justheim Petroleum Co.

•

Some 7,000 ft. of well cores from oil-bearing West Texas formations have been added to the core library of the University of Texas Bureau of Economic Geology.

The bureau now has 63,000 ft. of well cores from all parts of Texas.

Gulf Oil Corp. contributed the new cores, which represent most West Texas producing formations.

•

Humble Oil & Refining Co. has proposed a gas injection project for the Ham Gossett field, Kaufman County, East Central Texas, under which injected gas would accumulate as a "bank" and no gas-oil ratio penalty would be applied until the bank had been produced.

R. C. McGinnis, Humble attorney, told the Texas Railroad Commission that the field has only one remaining producer, which makes 96% salt water. Humble proposes to inject gas into this well for a time, thereby creating an artificial gas cap, then attempt to produce oil through the present perforations.

•

Canada-Cities Service Petroleum Corp. is exercising its option on an

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undivided one-half interest in a 50,000-acre tract on the Southwest Innisfail Devonian Reef trend, in Alberta.

The tract has been held 100% by Fargo Oil, Ltd.

Cities Service will spud a D-3 test on the acreage before the end of the year, and will continue its seismic exploration work.

•

Corrosion Rectifying Co. has installed sixty well casing rectifier-type cathodic protection systems for Pan American Petroleum Corp., near Henderson, Tex.

Wayne A. Johnson, Corrosion Rectifying's president, says it is one of the largest projects of its type in the East Texas field.

•

Engineering

A new type of electric bottomhole heater has been developed by H. D. Bowman, of Raleigh, N.C.

The unit is designed to circulate heated fluid in the hole. The heater consists of an enclosed heating coil with a thermostat, maximum-minimum control, and an enclosed circulating pump. The unit is being tested in Pennsylvania.

•

A double piston surface hydraulic pumping unit for dual zone operation has been developed by Axelson Mfg. Co.

The unit reciprocates two sucker rod strings, which terminate at different depths using standard-type subsurface pumps.

The unit is designed to eliminate damage from misalignment of dual units where two mechanical pumping jacks are placed in line with the horseheads opposed.

All of the equipment is mounted on one base. The equipment incorporates two individual hydraulic circuits complete with separate prime movers. Two wellhead cylinders, one above the other, offset sufficiently to accommodate the wellhead dual spacing plate. These cylinders, mounted to a quadrupod, are bolted to the base.

The units are equipped with interconnecting valves, which can be used to take one unit out of the circuit completely, and allow either pump to double the pumping capacity from its zone.

•

Drilling Highlights

Wyoming—Atlantic Refining Co.-Fremont Petroleum Co. No. 3 O'Brien Springs Unit, section 34-25n-86w, Carbon County, was dually completed, for oil from the Tensleep and gas from the Nugget. On four-hour test through ¼-in. choke and perforations in the Tensleep at 6,891-7,002 ft., the discovery flowed 196 bbl. of oil. Gas flowed at the rate of 3,664,000 cu. ft. of gas per day through ¼-in. choke and perforations in the Nugget at 5,418-72 ft. The well is 2 mi. northeast of a Frontier gas discovery on the unit.

Alberta—Shell Oil Co. No. 1 Panther River 1sd 5-19-30-10w5, dual zone gas discovery 60 mi. northwest of Calgary is reportedly flowing gas containing 87% hydrogen sulfide—nearly twice as high as any other well in Canada. Initial test in the Devonian at 9,099-116 ft. last February flowed gas at the rate of 7.2-million cu. ft. daily in 12 minutes—the time limit reported permissible because of the extreme toxicity of the gas. The discovery also flowed gas from the Mississippian at the rate of 6.2-million cu. ft. daily on 14-hour test of open hole at 12,701-13,414 ft.

North Dakota—Calvert Drilling, Inc., No. 1 Jules Vande Walle, section 5-162n-95w, Divide County, recovered 6,630 ft. of oil and 31 ft. of water-and-gas emulsion on 3½-hour drillstem test of the Nesson (Mississippian) at 6,641-61 ft. Gas pressure was reported to be "very high." The prospect is a ½-mi. north offset to the Baukol-Noonan pool, where production from two wells has been marginal.

Utah—Tennessee Gas Transmission Co. No. 1 U.S.A. Poison Springs, section 4-31s-12e, Garfield County, recovered 160 ft. of 39-gravity oil on 1½-hour drillstem test of the Hermosa-Paradox at 4,164-94 ft.

West Texas—General American Oil Co. No. 1 Susie Koonsman, section 5, block 2, T&NORR survey, Garza County, was dually completed for 39 b/d of 40-gravity oil through ¾-in. choke and perforations at 7,787-807 ft. in the Strawn, and 333 b/d through 8/64-in. choke and perforations at 8,150-95 ft. in the Ellenburger. The discovery is 2 mi. southeast of Happy field.

In Kent County, Drilling & Exploration Co., R. E. Aldrich, and E. P. Munson No. 1 Fuller, section 707, block 4, H&GN survey, has an indicated Pennsylvanian reef lime discovery 1¼ mi. east of Cogdell pool. On drillstem test at 6,839-50 ft., the prospect showed gas in 3 minutes and oil in 28 minutes, averaging 40 bbl. per hour through ⅝-in. choke.

South Louisiana—The Texas Co. No. 1 Netherlands Corp., section 36-14s-21e, St. Charles Parish gas-distillate discovery 2 mi. north of Bayou Couba field, flowed 4,054,000 cu. ft. of gas daily and 168 b/d of distillate through perforations at 11,586-606 ft.

Mississippi—Central Oil Co. and Lone Star Producing Co. No. 1 Masonite Corp., section 25-10n-10w, Jones County discovery 3 mi. east of Sandersville field, was completed for 304 b/d of 39-gravity oil through perforations at 10,710-22 ft. in the Lower Glenrose.

Saskatchewan—Williamson Drilling Co. No. 4-25 Williamson Farr, 1sd 4-25-4-34w1, 2½ mi. northeast of a recent Mission Canyon oil discovery S.S. south of Hastings field, recovered 1,410 ft. of oil, 120 ft. of oil-cut mud, and 210 ft. of salt water on 1-hour drillstem test in the Mission Canyon (Mississippian) at 3,900-48 ft.

Northeast Louisiana—Shell Oil Co. No. 1 Ayer Land & Timber Co., section 17-14n-11e, Tensas Parish, was completed for 248 b/d of 39.4-gravity oil through 11/64-in. choke and perforations at 7,349-90 ft. The Tuscaloosa sand discovery is 6 mi. northeast of Killens Ferry field.

Oklahoma—Weimer & Fitzhugh No. 1 Start Unit, section 18-6n-3w, McClain County, flowed an estimated 40 bbl. of oil per hour on 41-minute drillstem test in the Bromide (Ordovician) sand at 10,978-98 ft. A similar flow had been made on a previous test at 10,943-78 ft. The prospect is 1¼ mi. northwest of East Criner pool.

Nebraska—Don Rounds No. 1 Towle, section 10-15n-53w, Kimball County, was completed on the pump for 140 b/d through perforations in the J sand at 5,563-70 ft. The discovery is 2 mi. west of Anderson field.

Texas Panhandle—Graham-Michaelis Drilling Co. No. 1 Hoover-Simmons, section 79, block T4, T&NORR survey, Ochiltree County, has established Morrow zone oil production in the Chunn gas field. The discovery was completed for 352 b/d of 37-gravity oil through perforations at 7,754-59 ft.

Colorado—American Metal Climax Co. No. 2 Government, section 31-7s-104w, Garfield County, flowed 1,021,000 cu. ft. of gas per day from the Dakota, Buckhorn, and Upper Morrison formations. No tops were reported. The wildcat is 2 mi. west of Prairie Canyon field.

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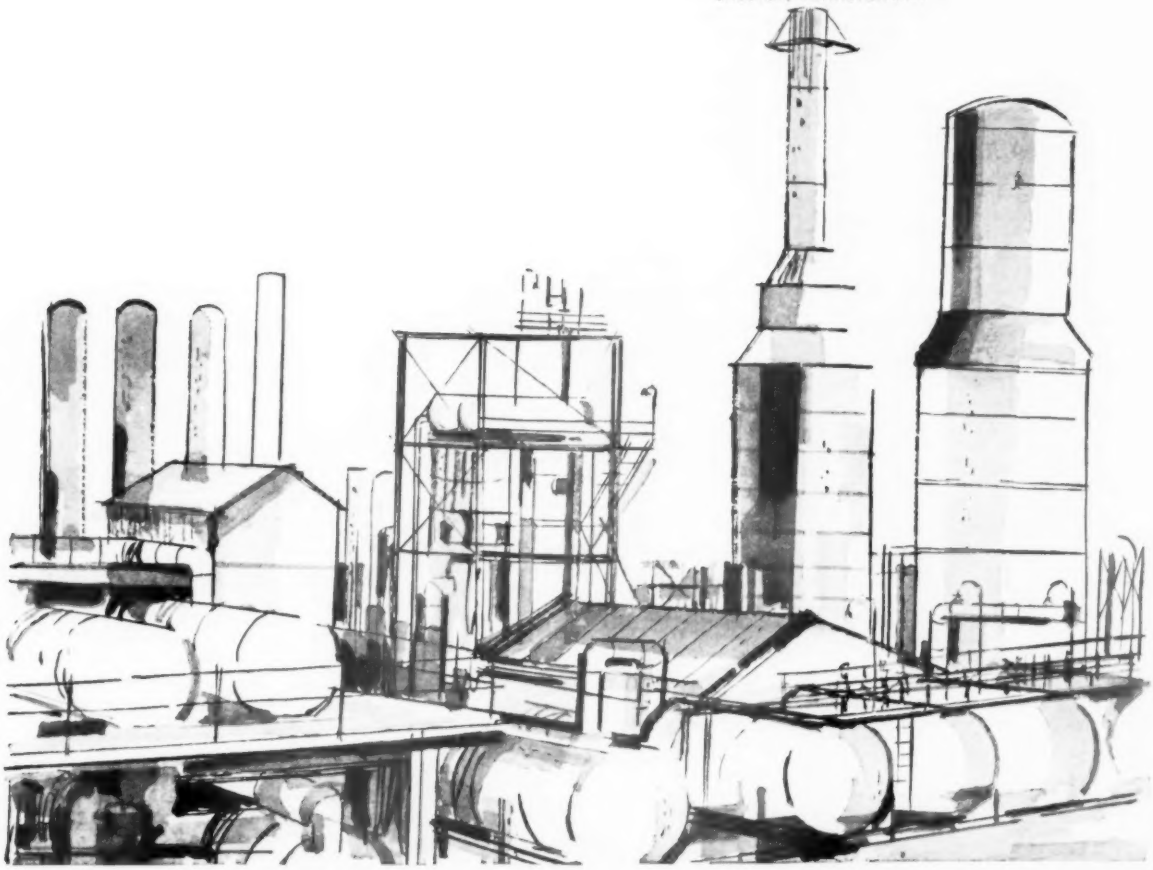

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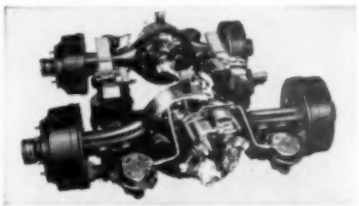
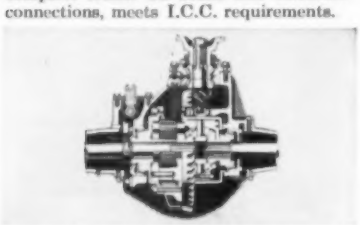
Ford Extra Heavies have proved themselves on every kind of job—you can count on them for *dependability* and *durability*. And in '59, you get high performance at low Ford prices for brand-new reasons! New faster rear axle ratios, new higher capacity axles, and other important options make big-truck operation still thriftier in '59 when you go *Ford*-ward. Send coupon for full information!

NEW Tractor Equipment Package provides complete trailer air brake and electrical connections, meets I.C.C. requirements.



NEW Ford Tilt Cab Tandems are available with three tandem-axle capacities: 28, 34, and 38,000 lb. Front axles to 15,000 lb.



NEW Faster Axle Ratios team up with Super Duty V-8's for greater gas economy and reduced engine wear. For example, 5.43/7.39 to 1 available in 1100 Series.

NEW 2-Shoe Brake (parking) is standard for '59 on all Ford Extra Heavies. Has 50% greater stopping and holding power, requires 50% less effort to operate.

Tilt Cab Tandem Ford C-950 (above) has hydraulic loader with push-button remote control.

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BRAND-NEW TILT CAB TANDEM FORDS for '59 combine the easier, more economical maintenance of tilts with high tandem-axle load capacities. Tilt design also permits higher front axle loads, longer body on given wheelbase. C-950 Tandem, above, operated by Fairlawn Supply and Concrete, Akron, has 15,000-lb. front axle, 34,000-lb. rear. Carries up to 6,500 brick, compared to 5,000 on a conventional tandem. Has 401-cu. in. V-8, 5-spd. main transmission, 3-spd. auxiliary, 201-in. wb. GCW (with pup trailer) 72,000 lb.

COST LESS ... *less to own ... less to run ... last longer, too!*

Decision Due on "For-Hire" Gas Lines

A showdown is not far off on whether the Federal Power Commission will bless or blast the increasingly popular "for-hire" use of gas transmission systems.

Here's how such deals have been worked out:

The gas purchaser, usually a utility or an industrial firm, wants its own reliable, long-term gas supply, so it negotiates with producers and eventually settles with them on price, volume, and delivery terms.

A transmission firm is then asked to transport the gas from producer to buyer, either on a firm, or an interruptible basis, or both. The transportation price is the full cost of service by the transmission company.

FPC, which at one time approved such projects almost as a matter of routine, recently created a good deal of doubt as to how it would feel about future for-hire contracts.

Transcontinental Gas Pipe Line Corp., which had several for-hire contracts approved by FPC dating back to the company's initial operations in 1951, recently felt the sting of the commission's turnaround on such proposals.

Transco asked FPC for permission to move about 50-million cu. ft. daily of gas belonging to Consolidated Edison Co. of New York from South Texas to New York City (PW—May 23'58,p38). Instead of an early reply, the company waited several months and was then told only that an FPC decision would be "delayed" (PW—Sep.12'58,p6).

FPC now has before it an application for permission to build a $2.5-million South Texas gathering system to supply the gas for the latest of such for-hire proposals.

Again, Transcontinental is the natural gas transmission company involved.

This time the Transco mainline would be used to move gas from the proposed gas gathering system to the Long Island Lighting Co.

Both Transco and Valley Transmission, Inc., backer of the proposed gathering system, have filed requests for FPC certification.

This latest proposal is an ambitious project, which would begin its Texas-to-New York City deliveries early next year. So an early FPC decision is needed.

Fish Engineering Corp., Houston pipeline builder, formed Valley Transmission to build a system which would collect up to 100-million cu. ft. of South Texas gas by late 1960 for delivery to New York.

Fish plans to build gathering lines from 15 fields in four South Texas counties: Jim Wells, Brooks, Starr, and Hidalgo.

Fish would also build three dehydration units and one 600-hp compressor station, which would be located in the North Monte Christo field, Hidalgo County.

Valley proposes to begin delivering about 17.5-million cf/d in early January, 1959. By January, 1960, Valley would like to be delivering 32.5-million cf/d to Transco for the Long Island Lighting account. And by late 1960, a Valley spokesman says, the company is shooting at a delivery of 100 million cf/d.

At present, the Long Island Valley contract calls for a 20-year term. The utility would buy the gas supplied by Valley at the junction of Valley's system and the Transco mainline.

The gas bought from Valley would replace gas now being purchased from Transcontinental at the New York end of the Transco system.

Valley says that it already has committed two-thirds of the gas reserves it would need for such a deal.

And there's even a possibility that the new Fish affiliate will go as far south as Mexico in gathering gas for the Long Island Lighting account. Valley has reportedly discussed this with Pemex, the Mexican petroleum agency, without any agreement being reached so far.

Texas Eastern Transmission Corp. is the only company now importing gas from Mexico.

Valley also has under consideration drilling of an underground gas storage cavern near Corpus Christi. However, plans on the cavern will be held up until FPC's position on the whole proposal is known.

Moving somebody else's gas to market has become an attractive proposition to an increasing number of gas transmission companies.

The for-hire deals often make available gas that might not otherwise be available for interstate transmission, because of FPC regulation of the price of gas sold to interstate pipelines.

But sale of the gas in the state where it is produced to an out-of-state utility or industrial firm, for subsequent transmission out of state, skirts FPC jurisdiction. So the producers are happy, the gas transmission company moves the gas anyway, and the purchaser has a dedicated gas supply.

Pipe is Ditched for King Ranch Gas Plant

This is the 30-in. pipe that will feed the largest gas processing and cycling plant in the country—the plant Humble Oil & Refining Co. will build on the King Ranch in Southwest Texas (PW—Mar.21'58,p43).

The line, now being laid on the ranch, will help move 750-million cu. ft. of gas daily to the plant from the Seeligson and other Southwest Texas fields. The plant will recover about 25,000 b/d of liquid products.

The entire system is expected to be completed about mid-1960.

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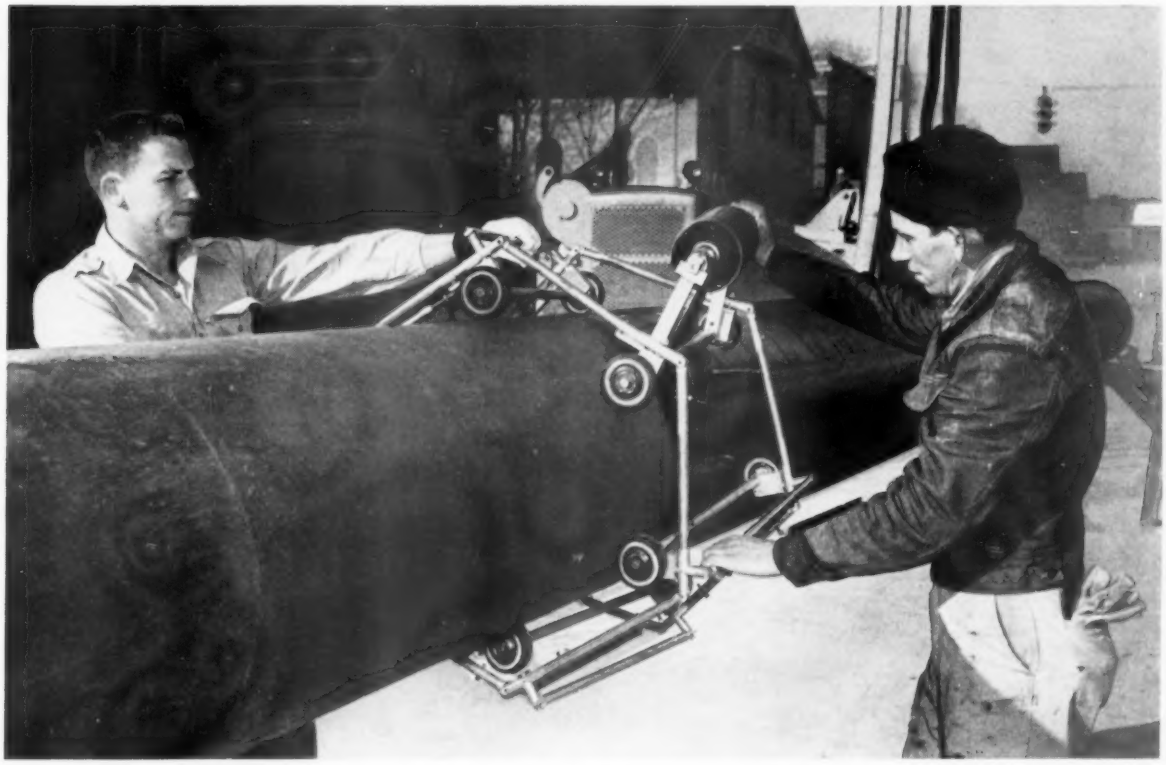
20-inch gas main site-wrapped with versatile Polyken® tape



Upper New York State utility company turns to Polyken tape to get the job done fast...and sure...in congested areas

This is the tape that's making big-inch pipeline news this year. Made of tough, inert polyethylene, Polyken tape offers proven protection against the corrosive effects of moisture, soil chemicals and electrolytic current.

And here, on a site-wrapping job in a congested city area, it provides another major advantage: *simplicity of application.*

Tape saves headaches

You know the complications of using a hot coating in a place like this. Easy-to-apply Polyken tape does away with these problems. It goes on, as you see, right off the roll—without heat, liquids, solvents or thinners. Saves time, labor and equipment costs.

Now you know why more and more utility companies are turning to site or over-the-ditch wrapping for their distribution lines with time-tested, time- and money-saving Polyken tape.

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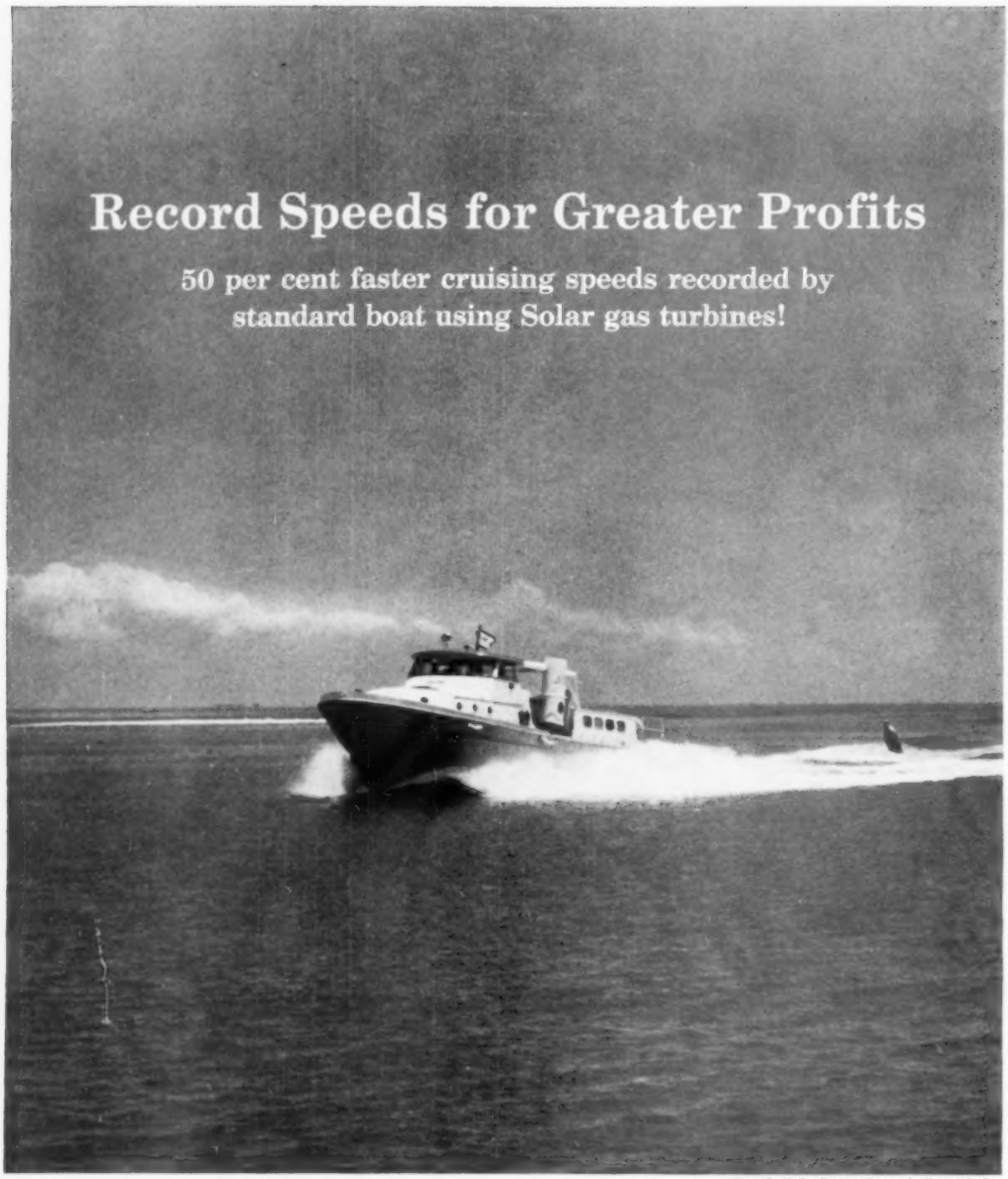

Boat built by Sewart Seacraft, Berwick, La.

TWO 500 HP SOLAR GAS TURBINE engines produce cruising speeds of better than 35 mph in this commercial workboat—*50 per cent faster than the same boat using diesel power!* By reducing the time required for commercial workboat operation, the 55-foot turbine-powered craft can save thousands of dollars daily in some applications. It signals a profitable new era in marine propulsion.

Weight of the complete 1000 hp Solar gas turbine power package is 4400 lb—1/6th the weight of marine diesels of equivalent power. It accelerates from dead stop to 35 mph in 12 seconds—while the same boat with diesel power requires more than 1 minute to reach 22 mph. And revolutionary Solar turbines offer other significant advantages including absolutely no vibration, easy maintenance, low noise levels and ability to burn a wide variety of fuels. Find out how these remarkable engines can step up your commercial boat operation. Write to Dept. F-79, Solar Aircraft Company, San Diego 12, California. We'll include a free gas turbine brochure.

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20,000-GAL. CAPACITY is the big selling point for this car, now being marketed as . . .

Tank Cars Try a Comeback

New, "bigger-than-ever" tank cars are spurring a new attempt by rail transportation to regain its early role as a major means of moving oil.

There was a time—back in 1942—when about 20% of the crude and products transported in the U.S. moved by rail. But things have been going so badly for the railroads in recent years that by last year their share of the petroleum transportation pie had been cut to about 4%.

The group hit hardest by this fall-off, tank car manufacturers, is now doing its best to reverse the trend.

Union Tank Car Co. which this week began showing what it calls "the largest tank car ever built"—a "hot-dog" type car with a 20,000-gal. capacity—is banking on the new car to boost rail shipments of petroleum appreciably.

Union's 20,000-gal. "hot dog" is the latest in a series of ever-larger tank cars which have been appearing over the past few years (PW—Sep.20'57, p58). Shippers Car Line Division of ACF Industries, Inc., for instance, came out last year with a 19,200-gal. car.

The average tank car on the rails today has a capacity of about 10,000 to 12,000 gal.

Union says the new car offers advantages to the shipper, the railroad, and even to the manufacturer.

E. A. Locke, Jr., president of the company, introduces the new cars this way:

"The user can now transport twice as much product at one time, trimming his costs. And it is cheaper and easier for the railroad to handle one car instead of two.

"And by going to the 20,000-gal. size, we have to build one car instead of two cars, making it cheaper for us."

Four of the new cars are already being built for use by Pennzoil Division of South Penn Oil Co. Each of Pennzoil's cars will be compartmentalized into four sections.

But if the new king-size cars are to bring back to the railroads any part of their lost crude and product shipments, they'll do it only after rail shipping rates have been lowered—and lowered a good deal. Locke is the first to admit that the new tank cars can't do the job all by themselves.

The beginnings of a trend toward such lowered rail rates may be appearing.

Pennzoil got a lowered rate from the Pennsylvania Railroad for its new cars, and other roads appear to be ready to follow suit.

Also, it was just a few months ago that LPG freight rates were reduced by about 8% in ten southeastern states (PW—Jul.4'58,p29).

Tank car manufacturers are also trying to develop business with the budding petrochemical field by supplying more "specialty" cars.

Locke believes that the growing petrochemical industry, with its increasing use of tank car transportation, could reverse the trend away from such transportation established recently in the oil industry.

What's New
IN TRANSPORTATION

The greatest progress in cutting costs in the natural gas business is being made in getting the gas to market, according to William B. Poor, vice-president of Ford, Bacon & Davis, a consulting firm for many gas pipeline projects.

Poor said last week that, "from the use of photogrammetry, which reduces survey and mapping costs, to internal pipe coating, which permits greater gas flows and a victory against corrosion, we are winning the battle on the capital outlay front, and on maintenance, too.

"But the end is a long way off," according to Poor. "While new steels can save about $600 per mi. in capital costs in a major system—savings which offset higher prices in the field—it still costs about $4,000 per in. of diameter to lay a mile of pipe across normal terrain.

"And operating a line still costs 1½¢ to 1¾¢ per million cubic feet per hundred miles."

•

The Federal Power Commission has authorized El Paso Natural Gas Co. to build a $4.8-million gas gathering system in Lea County, N. M.; and Atlantic Seaboard Corp. to build $2.5-million worth of loops in West Virginia and Virginia.

El Paso will take gas from the East Maljamar and Kemnitz areas of Lea County. The company plans to build about 40 mi. of line and two compressor stations there in order to take some 27-million cu. ft. of gas daily from Phillips Petroleum Co. wells in the area.

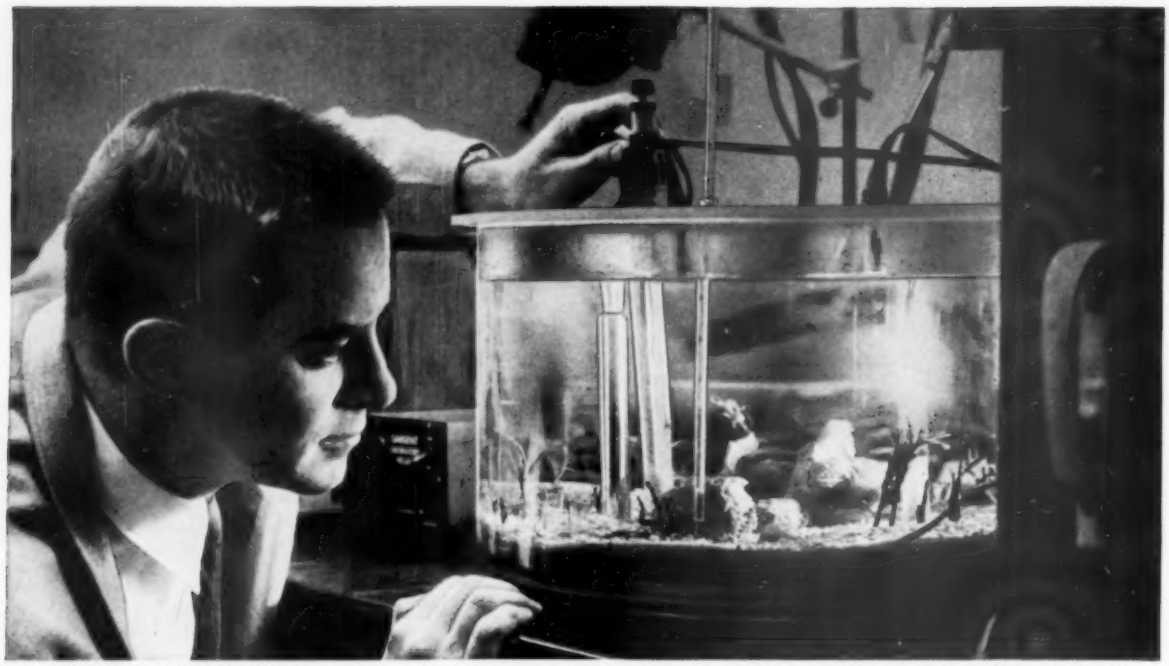
Atlantic will build about 12 mi. of 26-in. loop between its Seneca and Lost River compressor stations in West Virginia, and about 12 mi. of 26-in. loop just east of the Lost River station, but across the state line in Shenandoah County, Va.

•

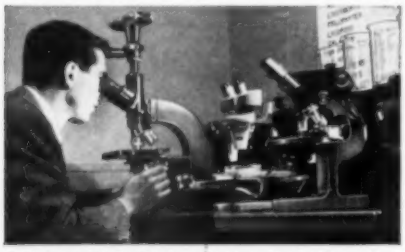
Two more 46,000-ton tankers were completed in eastern U.S. yards last week.

"The largest commercial vessel ever built in the Delaware Valley," the Philine, was launched at the Camden (N. J.) yard of New York Shipbuilding Corp. The tanker, which can carry 396,000 bbl. of crude, was built for Somerset Shipping Co. for charter to Asiatic Petroleum Corp.

The S.S. Olympic Falcon, which has



WHAT CAN A FISH BOWL TELL? The tiny plants and animals that grow in this "fish bowl" will be similar to those that grew in oceans fifty million years ago and more. The aim of this experiment is to add to man's knowledge of where to look for oil deposits. Pictured is Dr. F. G. Stehli.



HAY FEVER SUFFERERS may be interested to know that pollen is helpful—in the search for oil, that is. Here Dr. A. T. Cross studies traces of pollen in rock millions of years old to interpret underground formations. A comparatively new science, this study of ancient pollen opens previously explored areas to new examination.

THE SEARCH FOR OIL goes on in some of the most inaccessible regions in the world. And expensive, specially-built equipment like this "swamp buggy" is needed to overcome the obstacles of nature and to find more new oil every year than is taken out of the ground.

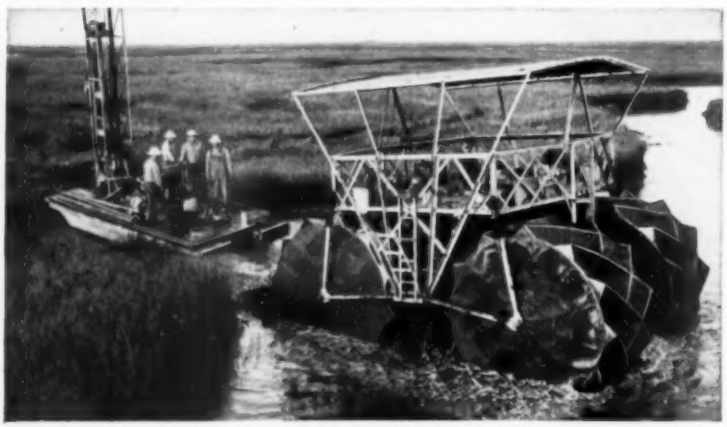
Time turned back 50 million years; Scientists seek new clues to oil!

Tiny marine plants and animals, very like those living when dinosaurs roamed the earth, are being grown today in a research laboratory.

In glass containers similar to fish bowls, scientists of Pan American Petroleum Corporation, a Standard Oil affiliate, have transplanted sand and sea water from an ocean shore line. Then, by controlling temperature, pressure and salt content, they have simulated the environment of plants and animals that grew 50 to 300 million years ago.

The chemical composition of the microscopic life that grows in the laboratory will offer more positive clues to the type of environment of ancient fossils; that is, whether the tiny animals lived and died in deep, shallow, or protected water.

This knowledge will help scientists to map ancient seas with greater accuracy, to pinpoint the location of prehistoric shore lines and barrier reefs where conditions were ideal for oil to form. Such knowledge will improve our ability to find oil in sufficient quantities to meet today's steadily increasing needs.



This is another example of the way research works at Standard and its affiliates to discover quicker, surer methods of finding oil, to keep the supply up and the price down.

As the result of such trail-blazing research work as the fish bowl project, America's proved underground reserves have grown larger, prices have remained reasonable, and America has been assured of an adequate supply to keep its defenses strong.

What makes a company a good citizen? One measure is a company's concern for the welfare of future generations. In our business, a "let-tomorrow-take-care-of-itself" attitude would be disastrous. Through research, we at Standard are working to make life more comfortable and secure for all—today and for the future.

STANDARD OIL COMPANY
(INDIANA)

STANDARD

THE SIGN OF PROGRESS...
THROUGH RESEARCH

a comparable crude capacity, became waterborne at the Quincy (Mass.) yard of Bethlehem Steel Co.

•

Republic Oil & Refining Co. and Scurlock Oil Co. have each bought Texas crude gathering systems from majors.

Republic bought 40 mi. of Humble Pipe Line Co.'s 6-in. East Texas gathering system. Republic will connect the system to its Port Lavaca terminal.

Scurlock bought the Gulf Refining Co. system that takes crude from 15 fields in Marion, Harrison, and Panola Counties, in East Texas.

The system also extends into the Rodessa field in Louisiana. It has been handling about 7,500 b/d.

•

A new 50-mi. products line will tie LaGloria Oil & Gas Co.'s Tyler (Tex.) refinery into the Little Big Inch Products system of LaGloria's parent company, Texas Eastern Transmission Corp.

The new line will be built from Tyler to Carthage, Tex., where it will tie into the Triangle products line. The Triangle system connects with the Little Big Inch line to Midwestern markets.

The Tyler-to-Carthage line is expected to be completed and put into operation shortly after the first of the year.

•

Snelling Co. will build a 22-mi. small-diameter crude line for Service Pipe Line Co. in Miller, Columbia, and Lafayette Counties, Ark.

The 8-in. line will connect two trunk lines and a gathering system that Service recently contracted to buy from Interstate Oil Pipe Line Co. It's expected to be in service by late fall.

•

Further centralization of the marine operations of Standard Oil Co. (N. J.): The marine service activities of Jersey's Butterworth System, Inc., have been transferred to the marine department of Esso Standard Oil Co.

Butterworth will remain an affiliate of Jersey Standard, and will continue to supply the Butterworth machines used to clean Esso tankers. But servicing Esso tankers and storing materials for the ships will now be handled by Esso itself.

A few months back (PW—May2 '58,p31) Esso Shipping was absorbed by Esso Standard.

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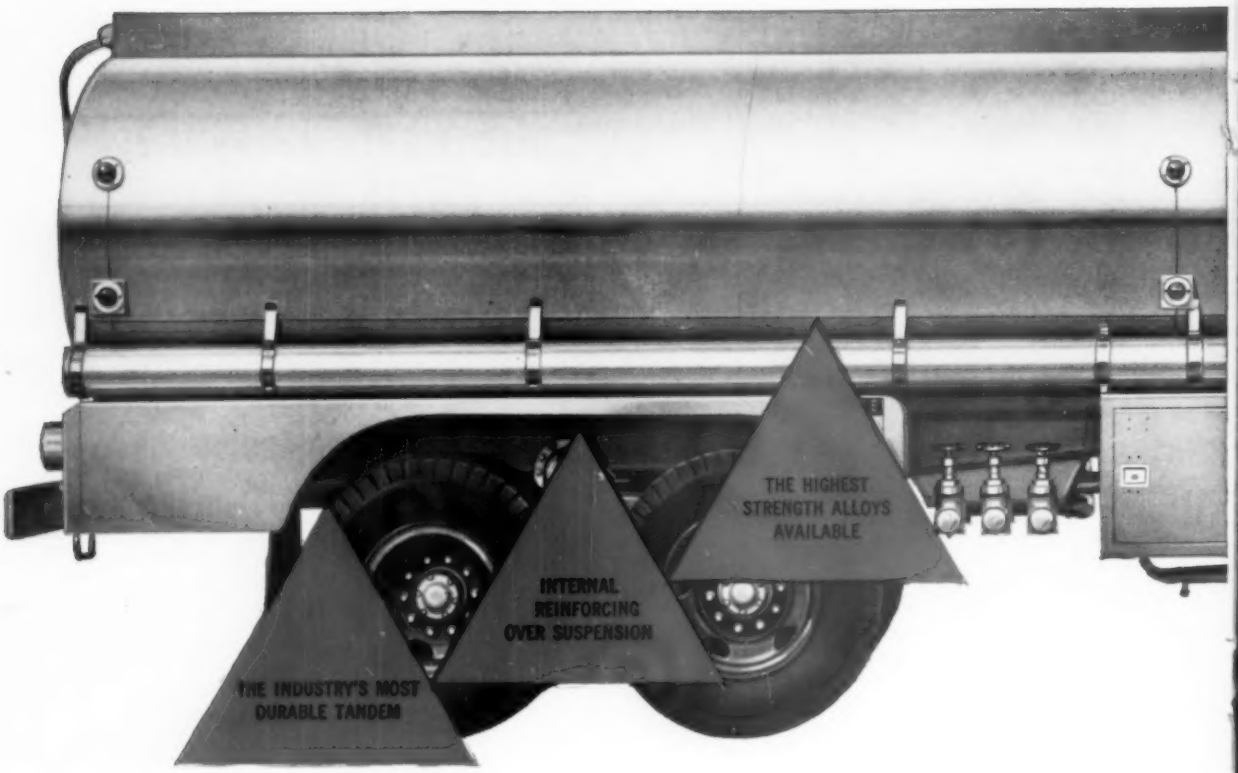

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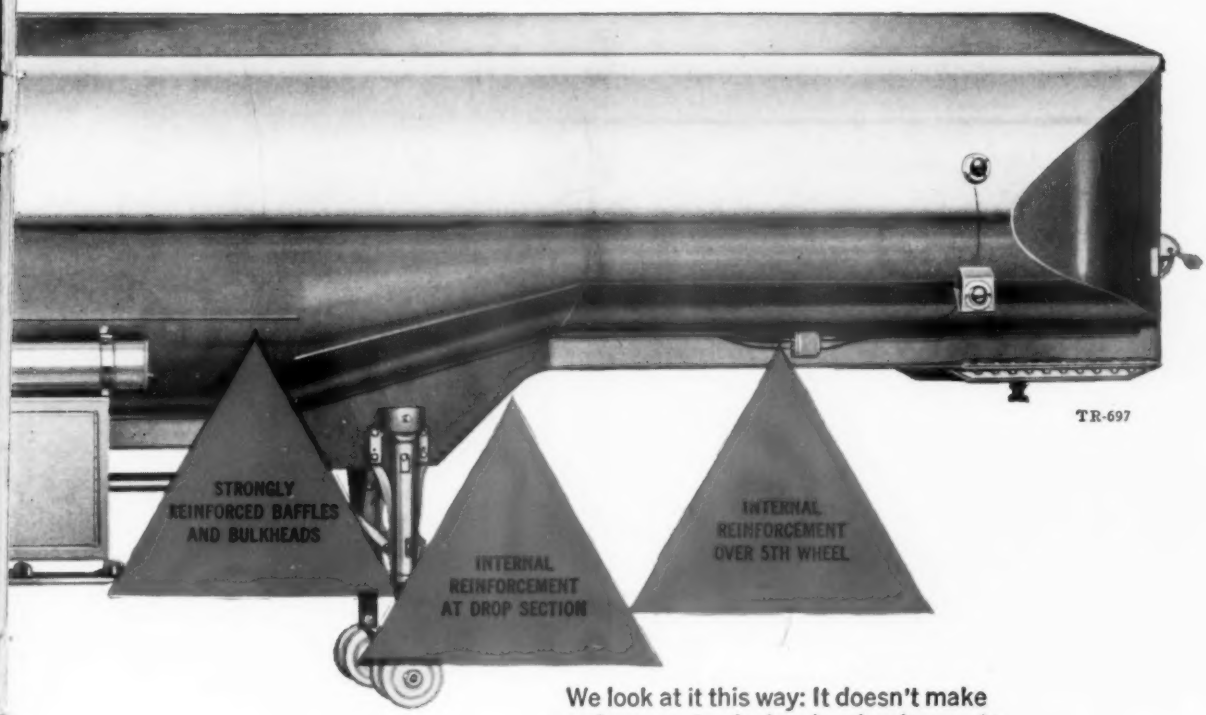
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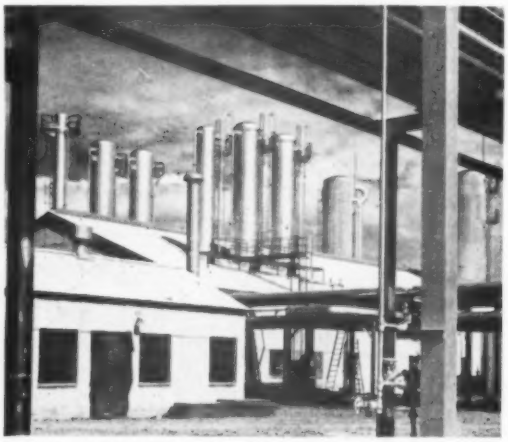
PORT MOODY (B.C.) REFINERY, just opened by British American Oil Co., Ltd., boasts a cat cracker with regenerator atop the reactor and British Columbia's first carbon monoxide boiler (left), plus the province's—and B-A's—first alkylation unit (right).



PINCHER CREEK (B.C.) GAS PLANT, (left) also just completed by B-A, will process some 120-million cu. ft. of gas daily for delivery to the Trans-Canada pipeline. It will also produce propane and butane, and will use amine treaters (right) to recover sulfur.

B-A Bets Heavily on Western Canada

The Western Canadian oil and gas industry got a $50-million combination vote-of-confidence and shot-in-the-arm this week—the opening by British American Oil Co., Ltd. of a 20,000 b/d refinery at Port Moody, B.C., and a 120-million cf/d gas processing plant at Pincher Creek, B.C.

British American, which till now has concentrated its North American processing in Eastern Canada, says it built the new British Columbia processing plants because of its "confidence in the province's future."

The gas plant, now in the final stages of construction, was formally dedicated at midweek. Two days later, the refinery was given its public opening.

The processing scheme at the Port Moody refinery has a raft of "firsts" for British Columbia—and for British American.

The refinery will process Western Canadian crude delivered to it through the Trans-Mountain pipeline.

The crude will move to a crude topping and vacuum distillation unit designed to process 20,000 b/d of Western Canadian crudes. The refinery will also use a cat cracker, naphtha desulfurization unit, cat reformer, middle distillate desulfurization unit, and alkylation unit to make 380F-end-point gasoline, kerosine, diesel oil, atmospheric and vacuum gas oils, and residuals.

The middle distillate desulfurization unit, which uses a cobalt molybdate catalyst to remove sulphur, oxygen, and nitrogen compounds from middle distillates delivered from the crude and cat cracking units, is the first of its kind in British Columbia, and the first to be used in a British American refinery. It has a 4,000 b/d capacity.

The sulfuric acid alkylation unit, which will make 1,050 b/d of high-octane alkylate, is also the first both for British Columbia and for B-A.

B-A will also use an unorthodox cat cracker design at the Port Moody plant. The refinery's 9,000 b/d Orthoflow "B" cracker will have its regenerator installed above its reactor, instead of vice versa. B-A first used this cracker design at its Clarkson (Ont.) refinery, in 1954.

The plant's naphtha desulfurization

survey of 94 installations reveals multiple benefits of

PETRECO ELECTRIC DESALTING

this is what PETRECO DESALTING can do for YOUR refinery

TOPPING UNIT BENEFITS:

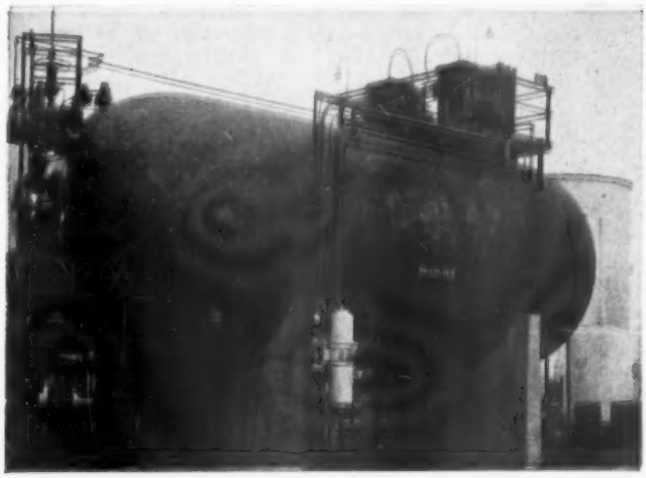
1. Higher charge rates
2. Longer runs
3. Increased service factor
4. Less corrosion in topping unit
5. Higher temperature to tower
6. Less heat exchanger plugging
7. Less crude furnace plugging
8. Scheduled Shutdowns
9. Improved charge stocks for catalytic cracking

CRACKING UNIT BENEFITS:

1. Longer runs
2. Fewer tube replacements
3. Higher temperatures from furnace
4. Less reduced crude furnace coking
5. Scheduled Shutdowns

GENERAL BENEFITS:

1. Higher octane values on gasoline
2. Reduced ammonia consumption
3. Improved kerosine color
4. Cleaner fuel oil
5. Less ash in coke
6. Improved fractionation in tower
7. Disposal of slop oil by blending with desalter charge
8. Disposal of tank bottoms in same way
9. Emergency water trap during tank switches, insuring uniform charge to crude unit
10. On-schedule operation of refinery, more efficient use of personnel



not mere opinion . . . but OPERATING FACTS

These listed benefits are not mere manufacturer's opinions. They are the careful tabulation of pencil-and-pad information obtained by personal interviews out in the field—with refinery operating personnel who actually work with Petreco Electric Desalters every day. Specific operating data were also gathered as substantial proof of these installation advantages.

If you'd like to see these operation facts, and find out more about the PETRECO DESALTING PROCESS, write for illustrated bulletin.

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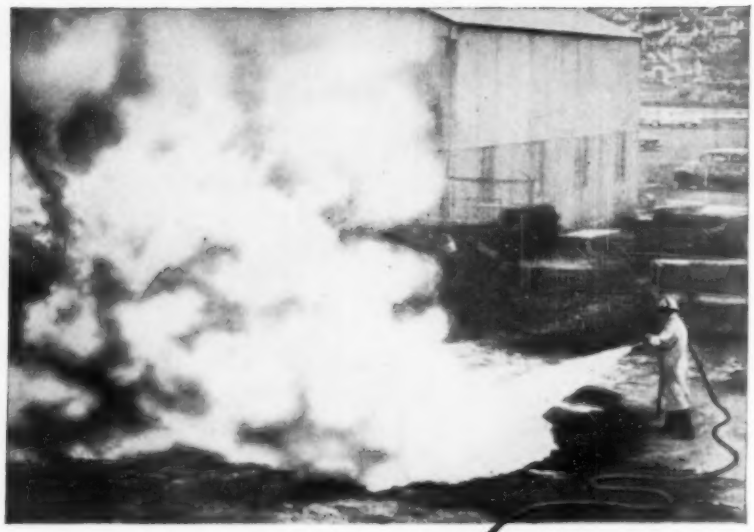
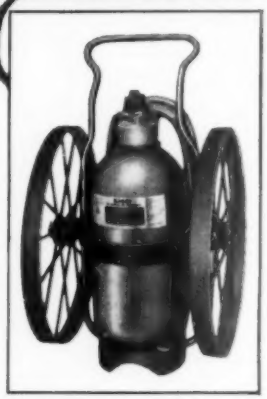


NEW!

One-Man Dry Chemical Kills More Fire Faster!



This new Kidde pressurized 200-pound extinguisher gets *more* fire-smothering dry chemical on a blaze *faster!* Its universal nozzle discharges a dense 40-foot stream that gives more efficient extinguishing action, greater heat protection for operator.

It has an *extra* 50 pounds of dry chemical to discharge on any stubborn blaze. Not 150 pounds, but a full 200 pounds of dry chemical – a 33⅓% bonus for safety! Yet its total weight is less – no heavy, cumbersome gas cylinder.

It's faster to operate too. No valves to unscrew. No wait for pressurization, for dry chemical to fluff. No pressure reducer to malfunction. Just remove safety pin, swing valve toggle, and flip "on-off" nozzle lever. There's no hose whip either.

Only Kidde has the Bridgeman seal head assembly. When pressurized at 450 psi with nitrogen or *dry* air, an inner force of three tons acts on the seal – the more pressure, the tighter seal. Virtually leak-proof, tamper-proof.

Check these other benefits. A low, balanced center of gravity, wider handle, compact design, and larger, lubricated wheels make it easy to move. It's weather and corrosion protected. And the shielded dust-and moisture-proof pressure gauge tells at a glance this extinguisher's readiness for action.

Write Kidde today and get the full story on this new U.L.-approved One Man Fire Engine.

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Walter Kidde & Company of Canada Ltd.
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section will be able to handle up to 7,000 b/d.

The all-electronic instrument system on the process units is the first complete installation of its type in Canada.

Canadian Kellogg Co., Ltd., was the prime contractor for the units.

The plant's electronic tank-gauging system is also a first—in fact, a first for all of Canada, according to B-A.

The Port Moody remote-control automatic gauging facilities will permit dialing a number for the correct quantity and temperature of product stored in any of the plant's 13 floating-roof tanks.

The refinery will also use an automatic gasoline-blending system, because B-A feels it "essential that the various components in the gasoline be blended in exact quantities to ensure top performance."

Special attention was also given to waste-disposal—both in the air and in water—in the design of the Port Moody plant.

To keep air pollution to a minimum, B-A has built a smokeless-type flare stack, 249 ft. high and 42 in. in diameter.

Complete sewage systems, including oily-water sewers and foul-condensate sewers, have been built at the Port Moody plant to make sure that no contamination of nearby Burrard Inlet takes place.

Electricity, steam, and water requirements will be met easily.

Electricity is delivered to the plant at high voltage by the nearby British Columbia Electric Ry.

Steam is supplied by two 652-psi., 750F boilers, with a capacity of 166,500 lb. per hr. One of the boilers is a conventional type; the other is the first carbon-monoxide boiler to be installed in British Columbia.

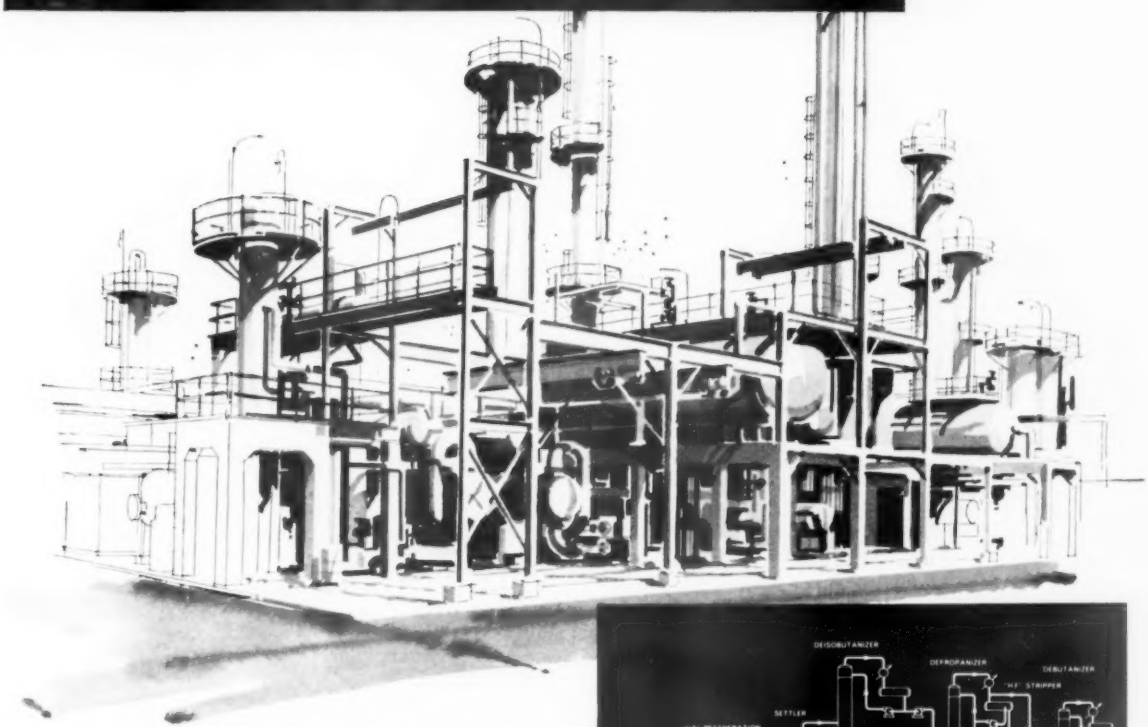
Water is supplied to the refinery through some 20,000 ft. of pipe laid to the City of Port Moody municipal mains.

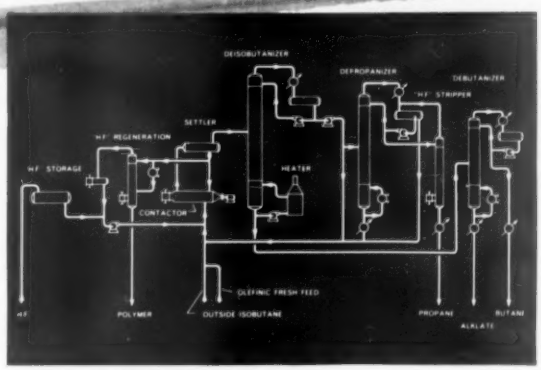
British American's Pincher Creek plant also represents an important step for British Columbia gas processing: The plant will convert sour gas from one of Canada's largest fields into a gas better suited for pipeline transmission by the soon-to-be-completed Trans-Canada system to Eastern Canada.

Vapor and liquid from the Pincher Creek field are delivered by separate pipelines to the new B-A plant.

The gas goes first to inlet separators, which remove any hydrocarbon condensate, and then to four high-pressure amine treating units, where hydrogen sulfide and carbon dioxide are removed by contact with a 20%

HF Alkylation





Makes Alkylate, Top Anti-Rumble Motor Fuel

A practical, economical means of producing motor alkylate, a high octane, top quality gasoline blending component, is available to petroleum refiners through the UOP "HF" Alkylation process.

"HF" Alkylation is a catalytic process which combines olefins such as propylene, butylenes and amylenes with isoparaffin (usually isobutane) to form a mixture of branched chain hydrocarbons of higher molecular weight known as alkylate. "HF" Alkylation is also widely used for producing high octane aviation gasoline.

Motor alkylate, an isoparaffin fuel component, burns with a minimum of carbon deposits even in today's modern high compression automobile engines and thus greatly reduces surface ignition and its consequent "rumble."

Another method for producing alkylate is also available to refiners through UOP. It is similar to the "HF" method but uses sulfuric acid as the catalyst. This process is licensed by Universal Oil Products Company under their own patent rights and the patent rights of Shell Oil Company, The Texas Company, The British Petroleum Company, Limited and Standard Oil Company of New Jersey.

These processes for producing alkylate afford further evidence of UOP's policy of providing the refining industry with every means for a well-rounded, profitable manufacturing operation.

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* **EFFICIENT HANDLING.** For suggestions on good operating procedures, best piping and container materials and other details of handling sulfuric acid, you can call on our Technical Service.

* **SAFETY.** It is most important that new operations or new employees have complete safety and handling instructions. We can furnish these as printed literature or in wall chart form.

For detailed information on any of the above subjects, call our nearest office or write Olin Mathieson Chemical Corporation, Chemicals Division, Baltimore 3, Maryland.

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solution of aqueous monoethanolamine.

The sweetened gas then moves to a main hydrocarbon absorber, which uses a lean stripping oil. Residue gas is scrubbed to remove traces of oil; then it goes to gas dehydration.

At Pincher Creek, the gas dehydration unit is of the solid-desiccant type. It reduces the water content of the gas to a maximum of 4 lb. of water vapor per million cu. ft. of gas. The dehydrated gas then passes through a check meter station and into the sales gas line through a pressure control station set at a maximum of 900 psig.

The Pincher Creek plant will also have an initial daily production capacity of 25,000 gal. of propane and 40,000 gal. of butane.

The liquid phase from the Pincher Creek field goes first to a liquid separator, and then to a condensate stabilization unit. Here the butane and lighter hydrocarbons are removed by application of heat from a fired reboiler, leaving stabilized or debutanized hydrocarbon condensate. The stabilized condensate is cooled and then goes to storage. Extensive vapor processing is carried out for further recovery of lighter fractions.

The plant will also recover about 450 long tons of sulfur a day.

Sulfur recovery at Pincher Creek consists basically in burning one-third of the hydrogen sulfide so that it becomes sulfur dioxide, and then reacting this sulfur dioxide with the remaining hydrogen sulfide.

Just as at Port Moody, British American has taken extensive anti-pollution measures at the Pincher Creek plant.

Residual sulfur gases from the sulfur plant are burned to sulfur dioxide and discharged to the air through a 350-ft. stack. Other waste gases are flared through a 200-ft. stack with a continuously burning pilot light, which converts any remaining hydrogen sulfide to sulfur dioxide.

All liquid drops and drains in the plant are piped to the appropriate classifying system.

The Ralph M. Parsons Co. of Canada designed and built the plant.

Again, electricity, steam, and water are from reliable sources.

Steam for the plant is provided mainly by three boilers, each with a capacity of 100,000 lb. per hour. Each boiler develops 300-psi. steam superheated to 550F.

Electric power is purchased from two separate sources, "to reduce the risk of power failure."

A small lake a mile south of the plant provides it with makeup water.

What's New / IN PROCESSING

Standard Oil Co. of California, Western Operations, Inc., has awarded a contract to Fluor Corp., Ltd., to build an alkylation plant and an isomerization plant at Socal's Richmond (Calif.) refinery.

Work on the new contract will begin immediately and continue concurrently with the building of a 55,000 b/d Model IV fluid cat cracker (also by Fluor). The entire facility is scheduled for completion next spring.

•

A collection of over 80 test methods widely used in the control of gas processing plants is available from the Natural Gasoline Assn. of America, Tulsa.

The publication, entitled "Plant Operation Test Manual," brings together into a single volume tests from many widely scattered sources.

Material in the manual was compiled by NGAA's Plant Control Committee, headed by K. G. Bottenberg, of Phillips Petroleum Co. The committee plans to keep test methods under constant review and send revisions and additions to all holders of the manual.

•

Imperial Oil Ltd. has started on a $425,000 construction job to modernize asphalt-making facilities at its Halifax (N. S.) refinery.

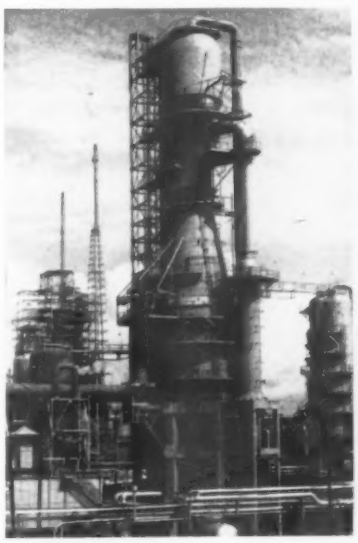
The project entails building new blending facilities and modernizing the existing oxidizing equipment. New tankage, heating facilities, and pipelines will also be installed.

The plant will be ready for operation next spring. It will make a full line of paving and roofing asphalts.

•

A new-type catalyst for the purification of olefin streams by selective hydrogenation has been developed by Catalysts & Chemicals, Inc., of Louisville, Ky.

The catalyst, designated C36 Selective Hydrogenation Catalyst, is said

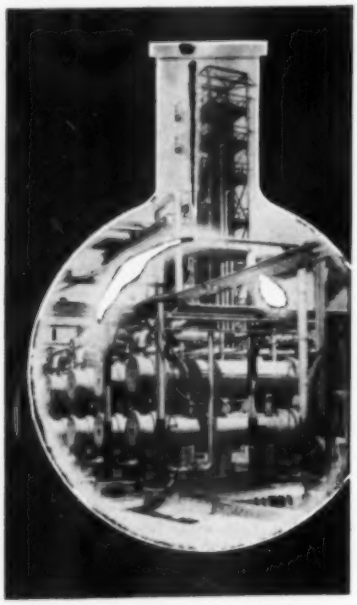


Humble Puts Novel Cat Cracker on Stream

Humble Oil & Refining Co.'s new fluid catalytic cracking unit No. 3, towering 265 ft. in the air, is the tallest unit at the Baytown (Tex.) refinery. Its rated capacity is 55,000 b/d. The unit has several unusual features, as indicated by its unique "inverted hand grenade" shape (left). The company says the new unit will increase refinery efficiency and, at the same time, increase its capacity in the fast-growing petrochemicals field.

Inside the reactor-regenerator are 47 huge cyclones, for removal of catalyst fines (right).

Oakite
ECP . . .



Best way
to clean a
catalytic
reformer

CASE HISTORIES document that the best way to clean a catalytic reformer is the Oakite ECP way . . . which recommends *chemical circulation*. For one important refinery, the program slashed five days time on reformer towers alone, saved $3,300 on cost of former cleaning method.

An Oakite ENGINEERED CLEANING PROGRAM is developed specifically for your refinery, gives you detailed recommendations for cleaning everything from coolers to crackers. The Oakite Engineer sticks with the job till it's done to satisfaction. His experience and judgment, combined with the products and methods developed by the finest chemical cleaning facilities in existence, assure you *thorough* cleaning . . . *fast* cleaning . . . low-cost cleaning.

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to contain compounds of nickel, cobalt, and chromium on an alumina support.

The company reports that C36 catalyst has undergone field tests in a large commercial ethylene plant since early this year, and is currently being installed in three major ethylene plants.

The main claims for the catalyst are that it has high selectivity and activity for hydrogenation of acetylene in raw sulfur-bearing ethylene streams, and that it does not require frequent regeneration to remove deposited polymeric materials.

•

Irving Refining, Ltd., will install a hydrogen-manufacturing plant to supply hydrogen to hydrodesulfurization units in the refinery the company is building at St. Johns, New Brunswick.

The hydrogen plant will supply more than 3-million cu. ft. a day of 90%-pure hydrogen. Design of the plant will be by Girdler Construction division of Chemetron Corp.

Raw material for the hydrogen plant will be low-molecular-weight hydrocarbons in gas or liquid form. It will be converted into hydrogen by the steam-hydrocarbon reforming process. Carbon dioxide will be removed by the Girbotol process.

•

SunOlin Chemical Co. is the name of the joint subsidiary formed by Sun Oil Co. and Olin Mathieson Chemical Corp. for the production of urea (PW—Jul.11'58,p58).

The 73,000-ton-per-year urea plant is to be built at Marcus Hook, Pa., near the Sun Oil refinery. President of the new company will be J. I. Harper of Sun. S. S. Johnson of Olin Mathieson will be vice-president. (For names of other officers, see page 62.)

The new company is incorporated in Delaware. Its registered office is at 100 W. Tenth St., Wilmington, Del.

•

Southwest Research Institute, of San Antonio, Tex., reports that it has developed a new, highly efficient gas-fired absorption refrigeration system.

The new system is said to show a 50% improvement in the coefficient of performance, a 30% reduction in fuel consumption, and a 25% reduction in cooling-water requirements over comparable existing techniques.

Dr. E. P. Whitlow and Dr. J. S. Swearingen, of SwRI, told a recent meeting of the American Institute of Chemical Engineers, at Galveston, Tex., that the system was invented and developed in a two-year research program for the American Gas Assn.

•

A new catalyst for producing odorless urethane foams has been announced by Houdry Process Corp.

The new catalyst, called "Dabco," is described as a one-shot polyether type. It is made of triethylenediamine. According to Houdry, flexible foams made with Dabco have low compression set, good properties of elongation and of tensile, tear, and shear strength, and excellent load-bearing characteristics.

It is said also to be applicable for production of foam from polyether prepolymers, dimer acid esters, adipic acid esters, and copolymers of dimers, polyethers, adipates, and polyethers.

•

Silane fluids show great promise as base materials for high-temperature engine oils and hydraulic fluids, according to a new Air Force research report.

The silane report, PB 131889, is available from the Office of Technical Services, U.S. Dept. of Commerce, Washington 25, D.C. The price is $1.

•

The Atomic Energy Commission is inviting industry to participate in a joint effort to develop additional uses for radioisotopes that may be important to the national economy.

Contract proposals to AEC will be evaluated on the basis of potential contribution to the national economy and welfare, advancement of technology, originality of proposed activity, general applicability to industry, application to key industries not yet exploiting radioisotopes, specific experience, competence and responsibility of the applicant, and the cost to AEC.

AEC has $3,650,000 budgeted to finance the program through June, 1959. Additional information is available from the Director, Office of Industrial Development, U.S. Atomic Energy Commission, Washington 25, D.C.

•

The Los Angeles Air Pollution Control Board, for the time being, at least, won't push for a rule to limit olefins in gasoline (PW—Oct.3'58,p75).

The decision was made after conferring with industry experts. Hearings on the proposed rule to limit sulfur content of liquid and gas fuels will, however, be held on Oct. 22.

Foxboro makes a better instrument . . . or Foxboro doesn't make it!

Final calibration of a Stabilflo control valve. Development of this Foxboro product, with its wide-range V-port design, contributed new exactness to automatic process control.

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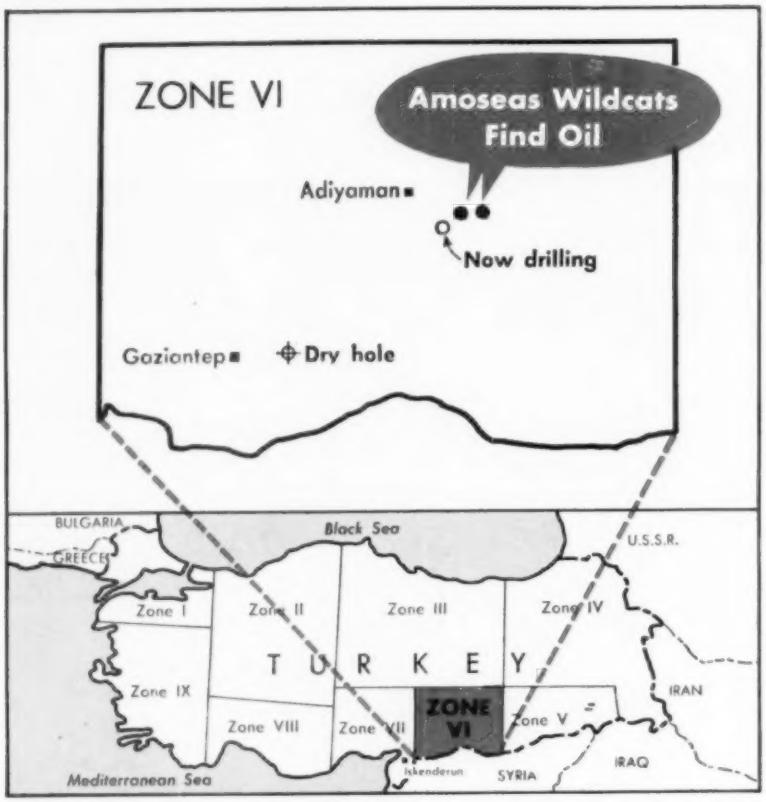


Turkey Tests Find Oil

American Overseas Petroleum, a Caltex associate, is the first of the foreign oil companies exploring in Turkey to find potentially commercial oil there, it was learned last week.

The oil was encountered in Nos. 1 and 2 Kahta, the second and third exploratory tests drilled by Amoseas in District VI.

No official announcements have yet been made on the wells, which are located on the Kahta Cayi structure in Gaziantep, 17 mi. southeast of Adiyaman. The two sites are some 70 mi. northeast of No. 1 Aril, Amoseas' first wildcat, which was abandoned as a dry hole last year at 10,153 ft.

Amoseas found 10-11-gravity crude in both its Kahta wells between 3,500-600 ft., in limestone.

Pumping tests have already been completed on No. 1 Kahta. Industry sources believe the well will make 500 b/d to 600 b/d. It is understood, however, that the test rate has gone both considerably higher and considerably lower, depending on the pumps.

Heavy-duty pumping equipment was being moved to No. 2 Kahta last week, and small quantities of the heavy crude recovered from No. 1 were turned over to the asphalt department of Turkey's state highways directorate.

Amoseas, meanwhile, is drilling a third test on the Kahta structure.

The find may prove to be Turkey's second oil area, and its third oil field.

Turkey's only commercial production thus far is in two small fields in District V, in the southeast, that are operated by the government's Turkish Petroleum Corp. The Raman field was discovered in 1941, and nearby Garzan in 1951.

With several wells shut in, total output from the two fields averaged 5,600 b/d last year—approximately the capacity of TPC's local refinery.

Wildcat drilling outside this producing region was started in several areas of Turkey last year by some of the 18 companies that now hold exploration interests in the country. Amoseas, which is exploring for the account of Texaco Overseas Petroleum Co. and California Asiatic Oil Co., is the first to concentrate on District VI.

Shell Starts Recovery Tests

CARACAS—Enormous economic stakes—involving billions of barrels of Venezuelan heavy crude reserves—may hang on the outcome of the thermal recovery experiments now being initiated by Cia. Shell de Venezuela.

The $3-million program announced by Shell last week is aimed at increasing the ultimate recovery of heavy crude from reservoirs of the Bolivar Coastal Fields along the eastern shore of Lake Maracaibo. Present production methods recover only about 30% of the crude in place.

The company has been doing experimental work at several sites to test thermal recovery techniques (PW—May24'57,p38).

At the same time, other Royal Dutch Shell companies, like U.S. firms, have been carrying out experimental laboratory and field work in the Netherlands and the U.S. Shell also participated in a three-year fireflood program carried out in California's South Belridge field by a group of U.S. companies. (PW—Aug. 29'58,p19).

The first test in Shell's new $3-million Venezuelan experiment is now under way in the Tia Juana field. A second is scheduled for the Mene Grande field.

The company has not yet released any detailed information on the tests, which apparently represent the first two of four secondary recovery projects submitted recently for approval by the Ministry of Mines & Hydrocarbons.

The four applications were for a thermal recovery system at Tia Juana, steam injection at Mene Grande, and two tests in the Cabimas field.

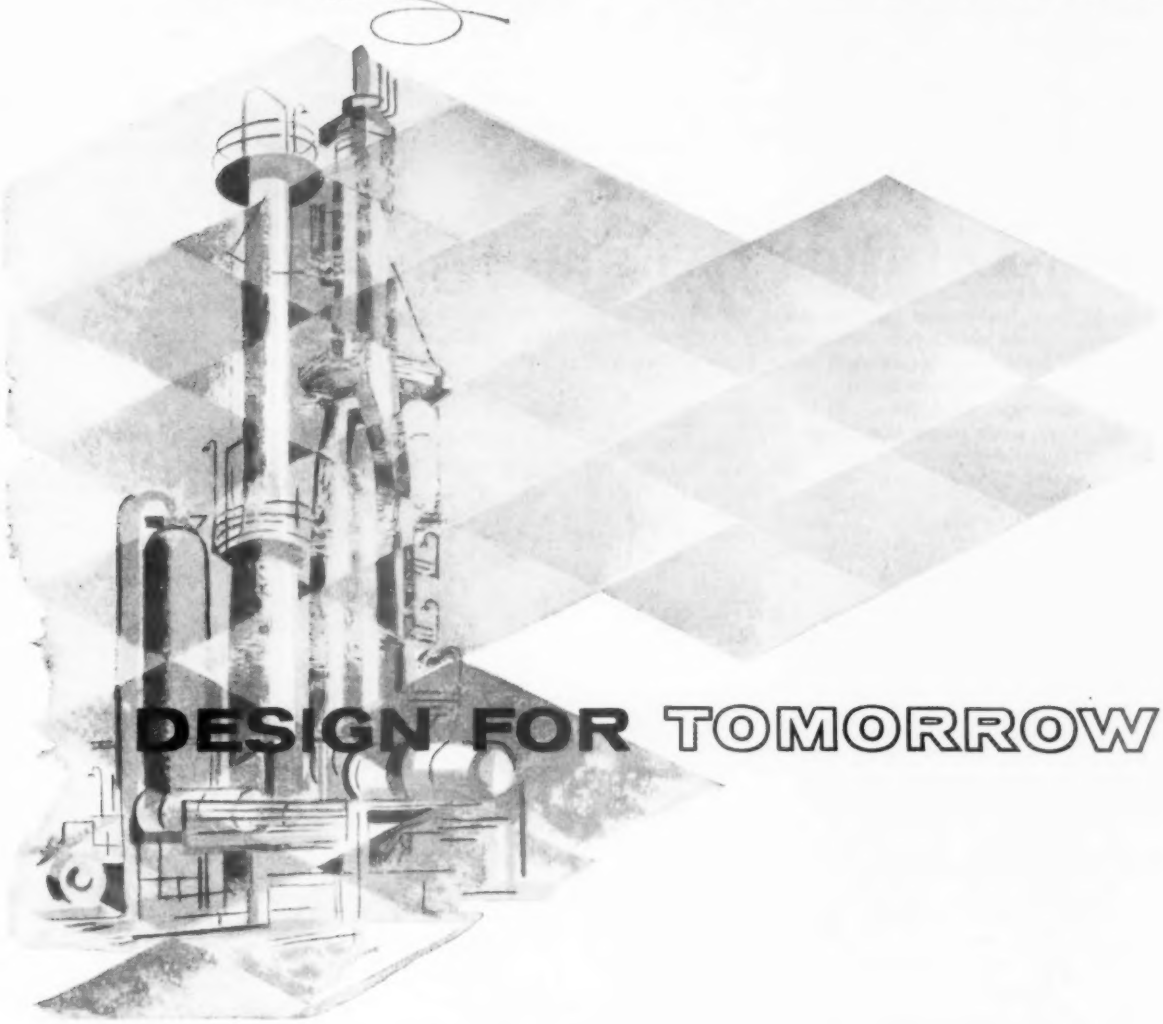
The Tia Juana test is of a thermal recovery system; the one at Mene Grande involves steam injection.

The other two tests will be made in the Cabimas field: recirculation of hot air (a maximum of 5.3-million cf/d); and water injection (a maximum of 950,000 gal. a day).

All three fields are 30-40 years old. Tia Juana, discovered in 1928, averaged some 244,000 b/d last year; cumulative production is well over 1-billion bbl. Mene Grande was discovered in 1914. Average output last year was around 37,000 b/d and cumulative production is around 500-million bbl. Cabimas, discovered in 1917, produced at a 65,000 b/d average last year, with cumulative output now hovering around 1-billion bbl.

J. H. Loudon, general manager of

intangibles were never so **important**



DESIGN FOR TOMORROW

The time is past when a petroleum, chemical or petrochemical plant could be built to meet immediate needs. In this fast-moving field it must be designed and built with an eye to tomorrow.

Flexible interpretation of plant design and broad experience in building for the future are important intangibles included in Procon service. That is why a Procon-built plant performs well today and yet can be readily adapted to the changing demands of tomorrow.

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WORLD-WIDE CONSTRUCTION FOR THE PETROLEUM, PETROCHEMICAL, AND CHEMICAL INDUSTRIES

the Royal Dutch Shell group, estimates that the world's recoverable heavy oil reserves could be doubled, or better, by the new thermal recovery methods—provided they prove economical compared with conventional production methods, as well as technically feasible.

Speaking in Amsterdam recently, Loudon noted that tests on a practical scale are now in various stages of preparation and execution in the Netherlands, the U.S., and Venezuela.

Royal Dutch Shell's Amsterdam laboratory, which has a staff of 2,000, has been doing important research in recent years on the effect of underground combustion of part of the oil, and the effect of steam injection into the oil formation.

"With these methods," Loudon said, "it is expected that it will be possible to raise the recovery percentage for heavy oil to about 50%. It otherwise varies from 10% to 25%."

Furthermore, he added, use of these methods may be considered in oil fields that cannot be economically produced at all by conventional means, or in those no longer exploitable.

New Oil Bids Overlap in Morocco

RABAT—U.S., German, and French companies have submitted overlapping bids for Moroccan oil right in the disputed southeastern border region of Morocco and Algeria.

The small flurry of applications is the first under Morocco's new oil law. The government has already made one grant to the Italians.

A Ft. Worth independent, Ambassador Oil Corp., has made a bid in the name of Ambassador Moroccan Oil Co. for roughly 15,440 sq. mi., stretching across the zones of Hammada du Draa, Kem-Kem, and Hammada du Guir.

A German independent, Wintershall A.G., has teamed up with a Tangier-based company, Sahara Mourakouch, to form Soc. Marocaine Allemande du Petrole. This company, in turn, applied for a total of 14,730 sq. mi. in two tracts: one of 4,500 sq. mi. in the central Draa River Valley region; and another of about 10,230 sq. mi. in the zone of the Taouz oasis.

And two French companies (still unidentified last week) are expected to apply this week for the same territory as Ambassador.

France has officially protested the bids along the disputed border, but Morocco expects to award the acreage in December.

The area has been in dispute between France and Morocco since the latter's independence.

The French wanted to set up a community of interests in the region, with a 50-50 profit split. But the Moroccans refused.

Another U.S. company and a French firm are applying for acreage in other parts of Morocco.

The U.S. firm, U.S. Exploration Co., which was formed in 1957 in Tangier by Frank Dills, of Denver, applied for three tracts totaling 46,200 sq. mi.: a 5,670-sq. mi. tract in the northwestern tip of the country; an 18,800-sq. mi. tract in a broad stretch of the coastal Meseta region, south of Casablanca, extending to about 30 mi. south of Marrakech; and another 21,730-sq. mi. tract in the northwest.

The French company, Prospection Miniere Recherches Petrolieres, has proposed two oil exploration projects in the Moroccan Meseta.

The first concession under Morocco's new oil law was awarded to Italy's state-owned Agip Mineraria, under a joint venture with the government (PW—Aug.1'58,p71).

The agreement, similar to the one the Italians concluded with Iran, covers an 11,300-sq. mi. area in the province of Tarfaya.

As a retort to this award, France later issued a permit in the disputed area of Tindouf, which is partly contiguous to Tarfaya, to Safrep, a French government-conrolled company. Morocco has filed an official protest (PW—Aug.29'58,p31).

There is some production in Morocco—about 1,500 b/d. Soc. Cherifienne des Petroles, controlled by the French and the Moroccan government, is producing the total from seven small concessions in the northwest part of the country.

Greece Debates a New Oil Bill

ATHENS—A new draft oil law is up for debate in the Greek parliament. Its purpose: to get more foreign companies to join the oil hunt which has drawn only very limited interest to date.

The new bill, conceived and proposed by the Minister of Industry, was first introduced to a parliamentary committee at the end of September. This committee, in turn, sent the bill to a subcommittee.

As the bill now stands, the government's profit share would be based on varying minimum percentages of annual production. Rights would be granted companies offering the highest payments above these minimums.

According to the incomplete details available this week, operator's payments would start at 2% for 1,500 tons of annual output. The scale ranges up to 30% for 150,000 tons.

Exploration rights would be granted for a maximum of 250,000 acres the first two years, with a further two-year extension at the company's option.

Minimum drilling is set at 3,000 ft. the first two years, and an additional 12,000 ft. for the two-year extension.

Development rights would be granted for a maximum of thirty years, with a ten-year extension at the operator's option.

After payment of the production percentage to the state, the company would be free to dispose of its production at will, except in a state of emergency.

The bill, which still is subject to considerable amendment, would be the first legislation designed exclusively for petroleum.

Greece's existing legislation covers all underground resources, and specifies that anything found automatically reverts to the state.

There has been no indication of any foreign company interest so far, though oil companies with marketing interests in Greece will be watching progress of the draft bill.

The only current exploration in Greece is being carried out in Thrace by a German independent jointly with a Greek firm.

The German company, C. Deilmann Montan GmbH, also holds acreage across the border in Turkish Thrace. Together with the Greek firm, Helios, the company has drilled several tests in recent years, one of which, in 1957, had oil and gas shows.

Seven shallow tests, totaling 6,007 ft., were drilled on the Ionian island of Zante by Pan-Israel Oil Co. and Israel-Mediterranean Petroleum Inc. Work was suspended in June, 1957.

What's New / AROUND THE WORLD

Texaco Affiliates Plan Two Refinery Expansions

TRINIDAD—The 125,000 b/d capacity of Texaco's Pointe-a-Pierre refinery would be doubled under a $20-million expansion program now under consideration, chairman Augustus C. Long disclosed last week.

The plant's capacity has been increased to the present level from 75,000 b/d in the two years since Texaco bought Trinidad Oil Co., Long said. In the same period, Texaco has stepped up oil production on the island to 50,000 b/d from 30,000 b/d, while reserves have been "substantially" increased.

•

VENEZUELA—Rated capacity of Venezuela Gulf Refining Co.'s Puerto La Cruz plant is being brought up to 115,000 b/d by a 60,000 b/d expansion now under way (PW—Feb. 7'58,p36).

This was disclosed last week by Augustus C. Long, chairman of The Texas Co., which hold ⅓ interest in the plant. Gulf Oil Corp.'s Mene Grande Oil Co. holds the other ⅔.

•

NORTHERN IRELAND—Another U.S. company—Camco, Inc., of Houston—is planning to manufacture oil field equipment in northern Ireland for export.

In December the company will start producing gas-lift valves and related equipment from its new plant on the outskirts of Belfast. Two other Houston companies—Mission Mfg. Co. and Hughes Tool Co.—already have plants in the area (PW—Jan.10 '58,p42).

•

SYRIA—Iraq Petroleum Co., now expanding its pipeline capacity to the Mediterranean, has ordered a new pumping unit for installation in Syria.

IPC placed a $420,000 contract last week with National Free Piston Power, Ltd., of England, for a 3,000-hp. free-piston gasifier turbo-pumping unit. It will go into operation within 15 months.

•

JAPAN—This country's first offshore wildcat was spudded last week from a LeTourneau platform formally christened the "White Dragon."

The test is being drilled about 1½ mi. off Michikawa beach, in Akita prefecture, northern Honshu, by Oil Resources Development Co., a semi-governmental company. The well is slated to reach 4,500 ft. by mid-November, when it will be suspended for the winter. Drilling is to be resumed next April.

•

WEST GERMANY—The oil industry is now estimating crude oil demand will soar to 680,000 b/d in 1965, double the present level.

This estimate is based on the first six months of 1958, when consumption of crude oil increased by about 80,000 b/d over the same period last year, to some 380,000 b/d. The oil industry estimates coal's present 84% share of West Germany's energy market will drop to 75% in 1965.

•

EAST AFRICA—A Toronto-based company is gearing to start exploration in Somalia and Kenya, where it may soon hold a total of 78,000 sq. mi. of adjoining oil exploration rights.

Frobisher Ltd., a Canadian mining and oil company, has formed a field party to explore its 8,000-sq. mi. oil concession in Kenya.

In the meantime, its bid to convert some 70,000 sq. mi. of prospecting rights in Somalia into exploration permits is now before the Somali parliament. Spartan Air Services, of Ottawa, is now air mapping the Somalia acreage.

•

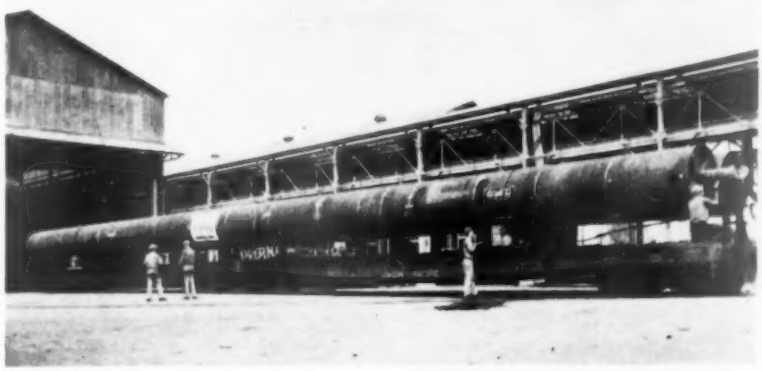
IRAN—National Iranian Oil Co. has officially called for new bids on all areas of District I, III, and IV on which oil rights have not been granted so far.

NIOC recently turned down a new joint bid from Royal Dutch Shell and Jersey Standard; these firms subsequently announced they would not submit new proposals. They are known to have offered a $30-million bonus for part of the remaining acreage in District I—without NIOC participation.

•

JAPAN—The first Russian oil to be imported under last December's Soviet-Japanese trade pact will be delivered from Sakhalin next week to Taiyo Oil Co., a small independent refiner.

The deal, negotiated for Taiyo by Sogo Boeki, a trading firm, covers a trial shipment of 12,000 tons (about 90,000 bbl.) of 33-34-gravity crude to be delivered for $16 per ton c.i.f. Japan, from Okha, northern Sakhalin. Taiyo has already received government approval to import some 100,000 tons of Sakhalin crude.



Equipment Heads for Shell's Lake Terminal

Seven high-tensile-steel mooring posts are being used in expansion of Shell's San Lorenzo terminal on Lake Maracaibo. Shown here are two of the posts, each 110 ft. long and 54 in. in diameter, shipped recently from the Houston plant of Wyatt Metal & Boiler Works. The plate is 1-in. in the middle 60 ft. and ¾-in. at both ends. The expanded facilities, under construction by Brown & Root S.A., will also be used by San Jacinto's Venezuelan subsidiary.

DEPT/Marketing

Oil Keeps Out of Billboard Fight

Most oil companies are keeping hands off in the many-sided melee over proposed billboard regulations on new highways.

The Bureau of Public Roads is expected to announce soon the final proposed national standards for regulation of outdoor advertising on the Interstate Highway System. States complying with the proposed standards for outdoor advertising within 660 ft. of the system's rights-of-way will get a bonus of 0.5% in federal aid funds.

Since fuel and automotive services are considered "essential" to the traveler, service stations are in a better position than some other advertisers. But the impact will be felt nevertheless; the proposed regulation will greatly limit the profitability of all outdoor advertising signs.

The issue is so controversial that—from a public relations standpoint—no oil company can afford to get involved in it.

"Our company, like most other oil companies, has always promoted safety and traveling ease," explains one ad manager for a major. "It would be incongruous for us to fight any controls that are aimed at providing better highways."

Another ad man shrugged his shoulders as he voiced his company's position: "A lot of groups are violently against billboards. We admit there should be controls against abusive use of billboards, but some of the groups fighting billboards go too far. It's too hot a subject, however, so we're staying out of it. Whatever regulations go through, we'll go along with."

The proposed national standards would limit size and placement of outdoor advertising along the new 41,000-mi. federal-aid system. Billboards would have to be held to roughly one-fifth the size of most signs now in use.

Essentially, this is what the proposed standards would demand of advertising along the interstate system:

- The bulk of advertising would be restricted to designated "information sites" at turnouts from the highway. An advertiser would be allowed only one sign, no larger than 12 sq. ft., in any one informational site.
- Other restrictions apply where no informational site exists within 12 air miles of a business designated as "in the public interest" (such as restaurants, service stations, and hotels). In such instances, signs no higher than 10 ft. or more than 60 sq. ft. in area would be permitted. Such signs could not: (1) be located within 2 mi. of an interchange; (2) number more than six between 2 mi. and 5 mi. from an interchange; (3) be located in specified "scenic areas"; or (4) exceed one per mile in areas beyond the 5-mi. limit.
- An advertiser would be allowed only one sign "visible to traffic moving in any one direction on any one interstate highway."
- Brand names and trade marks would have to be subordinate to name and place of business, and used only where they "identify or characterize" a business within 12 mi., or when they identify "vehicle service, parts, accessories, fuels, oil, or lubricants being offered for sale at such a place."

The restrictions cramp the style of brand-name advertising at a time when oil companies have been pouring money into the building of brand images.

Oil's billboards and station signs have been getting bigger and simpler, stressing brand names. There's been a bigger effort to make motorists brand conscious, to win them as credit customers.

One example of this is the increase of "saturation campaigns" in radio advertising, pounding away at brand name identification.

Some marketers are in the midst of programs to establish a single brand sign for all affiliated marketing companies. Standard Oil Co. of California, for example, is well into its two-year program to link its marketing with that of California Oil Co. on the East Coast, under the Chevron brand name. Caloil is budgeting more than $2-million a year for advertising to establish the Chevron brand.

Socony Mobil and its affiliates—Magnolia and General Petroleum—have also poured millions into advertising the Mobil brand name.

Although the billboard regulations wouldn't affect brand-buying by local motorists, it would be virtually impossible for the long-distance traveler to pick a station by brand signs.

To the outdoor advertiser, some of the size specifications simply don't make sense. And a big unanswered question: Who will choose among advertisers when the number of signs is restricted?

There are still some blind spots in the regulations that will have to be ironed out, say the advertising men.

"Some signs will be limited to 12 sq. ft. in size," complains one oil adman, "and will have to be so far from the right-of-way that you wouldn't even be able to see the sign. It would be better to have no sign at all. The regulations just aren't geared to the problems of outdoor advertising."

Still others feel that complaints about "unsightly" highways ruined by billboards have been overdone. Every garden club takes a picture of

Already Approved Are These Controls:

Maryland

Prohibits billboards within 500 ft. of the right-of-way of any expressway or controlled-access highway.

Ohio

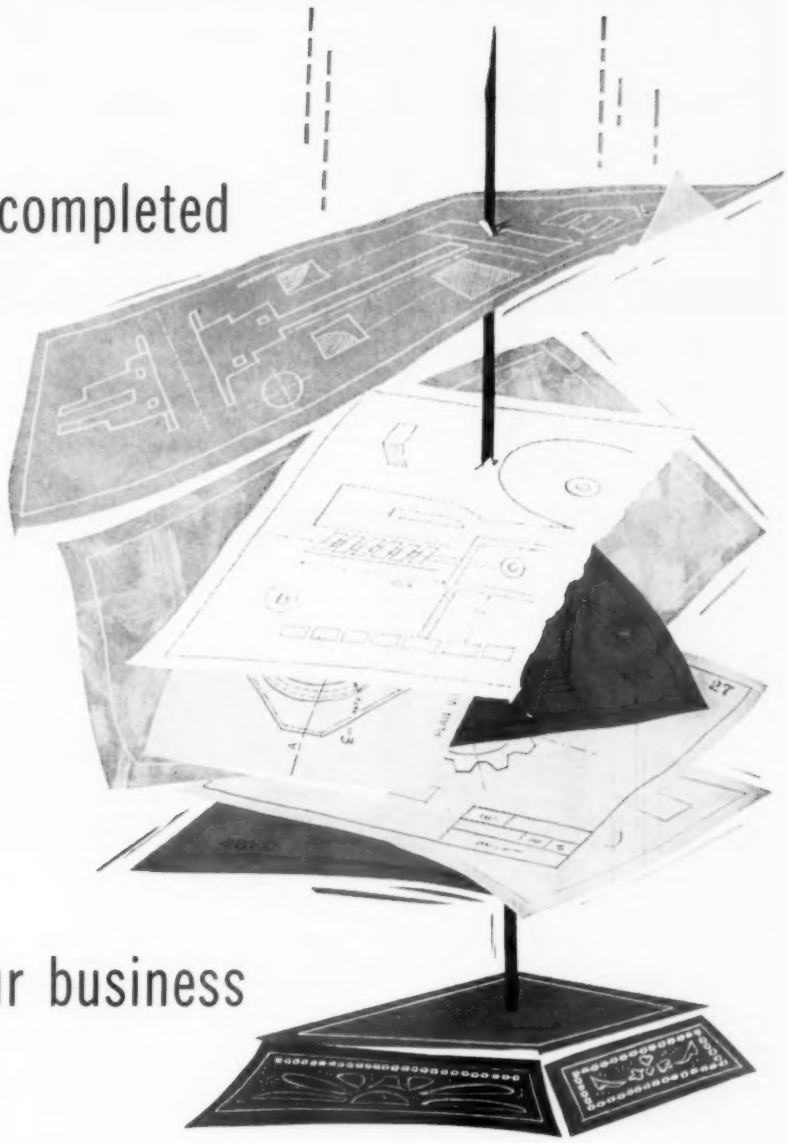
Prohibits billboards within 660 ft. of each edge of the right-of-way of Interstate Highway System outside municipalities, except signs identifying the goods or services produced or sold on the property.

Virginia

Bans billboards within 500 ft. of limited access highways outside municipalities, except signs erected by the highway commission for motor fuel adjacent to the highway. Other signs subject to commission approval.

Directs the legislative advisory committee to continue study of what signs, if any, should be permitted on the Interstate system.

...another job completed
ahead of time
and at a
substantial
savings!



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Brown & Root Construcciones, S.A., Caracas, Venezuela
Brown & Root, Ltd., Edmonton and Calgary, Alberta, Canada
Brown & Root, S.A., Panama City, Panama
Brown & Root, LTDA., Santos, São Paulo, Brazil

CABLE ADDRESS—BROWNBILT

A New Way to Tell the Story* of GASOLINE PROGRESS!

*** to your friends, your neighbors, your customers**

CUSTOMER: What's the best way to measure gasoline performance?

DEALER: The best and newest way to measure gasoline performance is in "ton-miles" per gallon.

CUSTOMER: What are "ton-miles" per gallon?

DEALER: That's the distance one gallon of gasoline will move one ton of automobile. It takes into account the varying weights of today's cars.

CUSTOMER: That sounds reasonable, but what does it prove?

DEALER: That with today's gasoline, you drive a real bargain! Measured by the "ton-mile," today's gasoline does 70% more work than gasoline did in 1930.

CUSTOMER: 70%? That's a terrific improvement in gasoline performance.

DEALER: Right! In 1930, the average car on the road gave 25 "ton-miles" per gallon. Today, the average is 43 "ton-miles."

CUSTOMER: But how about the cost of gasoline per gallon?

DEALER: You gain there, too! In 1930, you spent ⅔ of a cent for gasoline for each "ton-mile." Today, you spend only a little over ½ a cent for each "ton-mile" you drive.

DEALER: *You're getting 70% more work out of your gasoline, and you're saving 18% while you do it!*

CUSTOMER: Fill 'er up!

The "TON-MILE" Story is the story of gasoline progress. Tell this story every chance you get. It'll be good for *your* business!

American Petroleum Institute, Dept. G
50 W. 50th Street, New York 20, N. Y.

I would like to obtain more information about today's gasoline quality, prices and taxes. Please send me your FREE booklets.

NAME _____

ADDRESS _____

CITY _____ **ZONE** _____ **STATE** _____

REMEMBER OIL PROGRESS WEEK—OCTOBER 12th to 18th

the same billboard-ridden spot and holds it up as "typical," argue outdoor advertisers.

Other advertisers fear that inequalities will develop as a result of the restrictions. If there isn't room for all the advertisers who want to put up billboards, some system for selection will have to be set up—and somebody will be left out. Such selection is one more unrelished government control, in the eyes of some—even though they recognize the need for some billboard control.

The regulations further complicate the thorny problem of optimum station location on new highways—serving through traffic without overbuilding in established local markets.

The big sales potential being created by new highway building is really the through driver, who isn't going to stop many times enroute. The local or semilocal traffic very likely is already handled by existing service stations.

One major-company official, struggling with this problem, comments, "We marketers will have to be very careful. For instance, on one 250-mi. highway being built between two major cities there are only 84 ingress-egress points, each located at a main cross-highway. Our studies show it would be foolhardy to build a station at each of these points. How can we get the through traffic, without diluting the local market? We still don't have the answer."

The promise of extra federal funds will assure billboard regulations in most states.

A few states already have set up restrictions (box, page 54), but the national proposals were still too undefined to get much attention in state legislatures this year.

About 30% of the interstate system, including sections located on old routes and certain business and industrial mileage, will be unaffected by whatever regulations are passed. The heavy concentrations of billboard advertising in urban and built-up areas will not be affected either. And for much of the interstate system, which is slated to take 13 years to complete, the effects will not be immediate.

On the other hand, there are thousands of miles of other limited-access highways already planned in addition to the interstate system. It is quite possible that states will adopt the same type of regulations for these roads.

What's New / IN MARKETING

D-X Sunray Oil Co. has opened the first in a series of "sales development centers," with dealers and lessees helping to plan the training programs.

The first center, opened in Tulsa last week, is a complete service station with classroom facilities and training equipment for all phases of station operation. It will be used to train dealers, lessees, distributors' dealers, sales personnel, and prospective dealers.

Twelve dealers and lessees from nine states were flown to the center for a four-day session to outline ideas.

•

Liquefied petroleum gas sales will climb about 5% annually over the next few years, according to a new forecast. Vast new markets are opening up in year round air-conditioning and appliance use of LPG, according to Paul Endacott, president of Phillips Petroleum Co.

Speaking to the Oklahoma LP-Gas Assn., Endacott pointed to the use of LPG in smokeless incinerators in "smog" areas, and in drying farm crops, as some of the opportunities to smooth out peaks and valleys in LPG demand.

A growing market for LPG, Endacott predicts, will bring total annual sale up to 10-billion gal. by 1966, compared to the 6.9-billion gal. sold during 1957.

•

Fleet-Wing brand of Standard Oil Co. of Ohio is moving into western New York, with two new marketers now selling these products.

Pease Oil Co., formerly a private-brand jobber, will handle Fleet-Wing products at some 30 gasoline outlets in Erie and Niagara counties.

Edward J. Fischer Oil Co., which has been operating under the Sterling brand (Quaker State Oil Refining Corp.) is switching to Fleet-Wing at its 18 outlets in Erie, Niagara, and Chautauqua counties.

Sohio is leasing a river terminal at North Tonawanda to handle distribution in the new market.

Now! Market a superior motor oil with new "60" Series lube oil additives

Oronite® "60" Series additives are actually a new approach to compounded motor oils. They were specially designed for today's high-powered automobiles to provide better engine performance under "start and stop" driving conditions.

New "60" Series additives incorporate an ashless detergent component that virtually eliminates oil clogging, reduces cylinder and ring wear to a very minimum. The result is a marked improvement in engine life and service.

Get the complete story on "60" Series additives. Contact the Oronite office nearest you, or write for technical bulletin giving complete information.

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Foreign Affiliate:
California Chemical International, Inc., San Francisco, Geneva, Panama
4886

DEPT/Service & Equipment Companies

ADM. EARLE W. MILLS has been elected chairman of Foster Wheeler Corp., New York, and **W. L. MARTWICK** succeeds him as president of the company. Mills will be concerned with Foster Wheeler's world-wide activities in the fields of power-generation equipment and process plants for the refinery and chemical fields. Martwick, formerly senior vice-president in charge of sales, will have charge of company operations. **John E. Kenney,** formerly vice-president of the midwestern office, in Chicago, has been named executive vice-president.

P. L. Myers

E. M. Connor

PARK L. MYERS has been named manager of U. S. and Canadian sales, and **E. M. CONNOR** manager of export sales, for Hughes Tool Co., in Houston. Myers and Connor will report to **W. H. Siems,** Hughes' general sales manager. Export sales have been divided into Western and Eastern Hemisphere territories, with **O. B. Latrobe,** New York, heading Western Hemisphere sales, and **R. G. Roberts,** London, Eastern Hemisphere sales. **Leon Stinson** is director of sales training, **J. R. Lesch,** manager of rock bit sales, and **R. W. Lewis,** manager of tool joint sales. Seven new managers of regional headquarters are: **T. G. Whiddon,** Dallas; **W. W. Hampton,** Houston; **S. J. Lintzenich,** Denver; **M. A. Foreman,** Midland; **F. T. Alexander,** New Orleans; **H. M. Kelly,** Tulsa; and **R. D. Hood,** Canada.

JOE FARMER has joined the staff of Witherspoon & Associates, Fort Worth and Dallas public relations firm, as a client representative. Farmer was formerly manager of public relations and advertising for Welex, Inc., Fort Worth.

C. J. ZABCIK is research and development engineer for the Baash-Ross division of Joy Mfg. Co., with headquarters in Houston. Before joining Baash-Ross, Zabcik was associated with Westinghouse Electric Corp. in Pittsburgh. He has also been associated with Western Co., in Midland, and with Shamrock Oil & Gas Corp., in Amarillo.

C. J. Zabcik

R. G. Jones

RICHARD G. JONES is Cardwell Mfg. Co.'s sales representative for South Texas, with headquarters in Houston. Jones was most recently associated with the Baroid Division of National Lead Co., also in Houston.

LONE STAR STEEL CO., Dallas, has been named winner of a national Public Relations News Annual Achievement Award for 1958, in recognition of its Chapel in the Pines program. The Chapel in the Pines was dedicated in 1955, with all employees not absolutely needed on the job in attendance.

J. R. McREYNOLDS has been named assistant traffic manager of Youngstown Sheet & Tube Co., at its general headquarters in Youngstown, Ohio. McReynolds has been manager of the traffic and purchasing departments of Continental-Emsco Co., a Youngstown division, in Los Angeles.

BOB CHURNSIDE, sales engineer, has been named head of F. H. Maloney Co.'s new district recently established in the Chicago area. He was formerly located in Houston, where he served pipe line and industrial customers. **Joseph V. Kidd** has joined Maloney as a sales engineer in the Houston area. He was formerly with Champlin Oil & Refining Co. as assistant chief engineer in charge of the design and construction of crude, gas, and product pipelines.

ROBERT HABERMEHL, JR., is technical service director for Girdler catalysts in the chemical products division of Chemetron Corp. Habermehl, with headquarters in Louisville, will be in charge of the technical service staff, which assists customers in the use of Girdler specialty catalysts. Habermehl has been in catalyst research and technical service work since he joined the company in 1950.

JAY C. FAILING has been named chief sales representative for a new line of rotary earth drilling equipment manufactured by Mobile Drilling, Inc., Indianapolis. He was formerly associated with George Failing Supply Co. as exclusive sales representative for the western United States and Mexico. In addition to his sales promotion activities, Failing will establish a network of distributors to handle Mobile's sales in the oil, gas, and waterwell industries.

R. A. Darling

C. L. Griffin

R. A. (Bud) DARLING has been named vice-president of Smithco Engineering, Inc., Tulsa, manufacturer of air-cooled heat exchangers for the petroleum industry. He will serve as manager and coordinator of Smithco's sales activities. Darling was formerly head of Darling Co., manufacturers' representative, in Denver. Previous to that, he was a sales engineer in Tulsa for Cooper-Bessemer Corp.

JOSEPH F. SANTILLI, JR., has been appointed manager of the marketing service section of Atlas Powder Co.'s Aquaness department, in Houston. Santilli formerly served in the chemical division's advertising and sales promotion department at Atlas offices in Wilmington, Del. Previous to that, he was assistant advertising manager of Pennsalt Chemicals Corp., at Philadelphia. In his new position, Santilli will be responsible for advertising, sales promotion and sales administration of Atlas chemicals used by the petroleum industry.

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Whatever the GRADE and the VOLUME of
NATURAL GASOLINE
Just rely on WARREN'S versatile facilities to give you dependable deliveries ... WHERE and WHEN and the WAY you want them.
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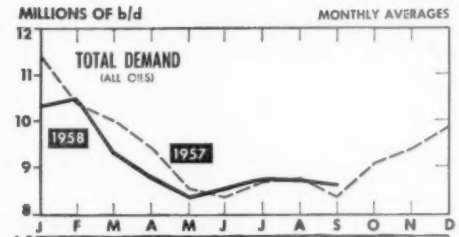
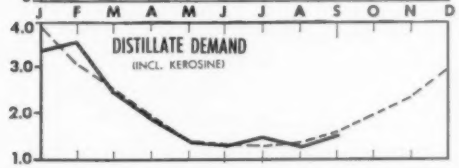
PETROLEUM WEEK'S

Fingertip Figures



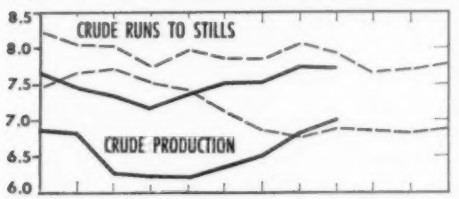
TOTAL DEMAND

Latest 4-week average	*
Year ago	8.742



DISTILLATE DEMAND

Latest 4-week average	*
Year ago	1.704

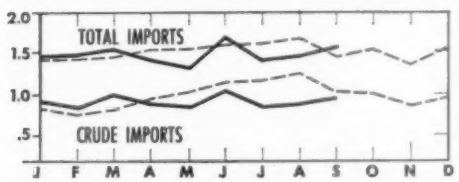


RUNS TO STILLS

Latest week	*
Previous week	7.507
Year ago	7.744

CRUDE PRODUCTION

Latest week	*
Previous week	7.014
Year ago	6.729

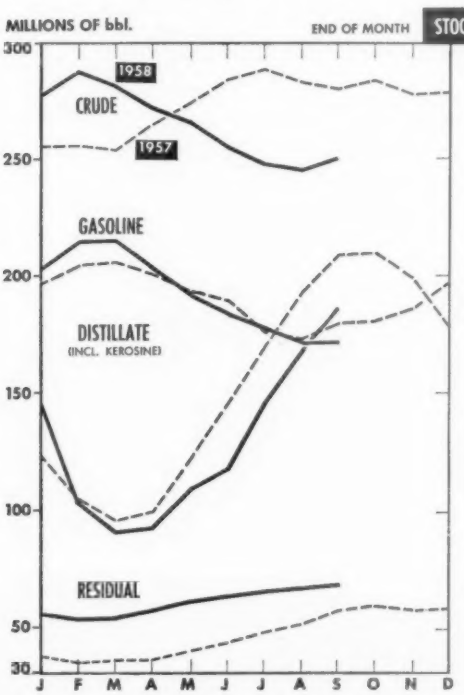


TOTAL IMPORTS

Latest week	*
Previous week	1.721
Year ago	1.466

CRUDE IMPORTS

Latest week	*
Previous week	1.020
Year ago	1.058



CRUDE STOCKS

Week-ended 10-4	250.3
Previous week	248.3
Year ago	283.3

GASOLINE

Latest week	*
Previous week	172.5
Year ago	177.9

DISTILLATES

Latest week	*
Previous week	187.8
Year ago	208.5

RESIDUAL

Latest week	*
Previous week	68.7
Year ago	59.0

Refinery runs during the last five weeks dropped 475,000 b/d, bringing substantial improvement to the industry's statistical position.

Early in September, runs reached 7,982,000 b/d—their highest level in the past 12 months. This peak was reached at a time when product stocks were unbalanced—too much gasoline and a relatively tight supply of distillates.

But due to relatively tight crude supply and a desire by many refiners to correct the imbalance in the stock position, runs have declined to 7.5-million b/d.

Gasoline inventories have declined in recent weeks to a level 5-million bbl. below a year ago and 3.5-million bbl. below two years ago. The present inventory of 172.5-million bbl. of gasoline is 2-million under the start of September.

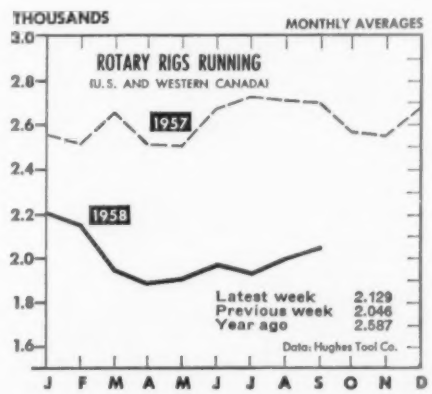
The yield of gasoline from crude and natural gas liquids is still close to the 51% level of August and September. But with reduced throughput of crude, output of motor fuel has dropped to 3,780,000 b/d, compared to more than 4-million b/d a few weeks back.

The reduced crude runs have not hurt distillate inventories. Refinery output of distillates is running about the same as a few weeks ago, and stocks are up 18.8-million bbl. since early September.

But the industry still must face the problem of not adding too much gasoline to storage during the off-peak winter months, when it is operating at high levels to make heating oils.

* * *

*Due to the Columbus Day holiday, most figures for the Oct. 10 week were unavailable at press time.



The Market Trend

Prices: How to Win Battles and Lose Wars

The industry is moving farther and farther into the thickets of destructive pricing practices. You hear more and more talk of product sales based on "crude realization contracts," with the refiner squeezed in the middle. Almost everywhere, direct methods of pricing are lost in the brambles of "umbrella" delivered contracts.

Sellers today are frankly moving away from f.o.b. pricing. As one major says, "We don't have an f.o.b. price any more—we just plan not to lose accounts." As often as not, the deal is finally closed with a delivered-gimmick-formula that represents a discount off of somebody else's net price after allowances.

Pricing all through the industry today is geared not to what it costs to produce and manufacture oil, but to prices paid by the fellow who rents a truck. At New York harbor, sellers have driven rack prices down below tank car and barge; the loss of margin is borne by the refiner, the terminal operator, and the producer of crude.

What worries serious-minded marketers is that when today's prices are netted back to the source, they point to severe contractions in refinery margins and serious discounting on crude. Stated another way, the operator of a gasoline station in Chicago (with relatively small investment) has a gross margin of something like $4.00 a bbl. A refiner at the Gulf (with large investment) has a margin of something like 40¢.

Much of the price trouble stems from the two-faced nature of prices for crude. Major refiners post one set of prices for the purchase of crude oil, but apparently sell products on another set of crude prices—their internal cost prices of their own domestic and foreign crude already discovered. An independent refiner with no crude will tell you he can't live under these conditions without "cheating" on the voluntary imports plan.

The only correction to discount and gimmick pricing, many people feel, is continued declines—maybe even a drastic cut. This would cauterize delivered-discount-type pricing to the bone. Some companies would get hurt.

Drastic fall or no, look for severe competition in the next few months. Major crude producers won't want to mark down their reserves by cuts in purchase prices. But if the big crude owners continue to hold product customers on a meet-any-price basis, then some reductions may be forced on U.S. crudes.

Confusion At New York:

The absurdity of some current pricing shows up at New York harbor. Prices for No. 6 fuel in small trucks at the rack (out of a barge terminal) are $2.27, while prices for transports of 8,000-gal. capacity at an ocean terminal are $2.32. And despite the fact that loading transports is roughly 25 times the work and expense of loading 20,000-bbl. barges, the barge prices, at $2.37, are the highest of the three.

Price Wars In the Midwest:

You may see some bad gasoline price wars in the Midwest this fall. Chicago is ringed with cut prices, off as much as 5¢ a gal., and price slashing in Lake County is said to be the worst in 20 years. Price cutting of as much as 7¢ a gal. abated in Kansas City early this week, but St. Louis prices are still 5¢ to 7¢ below "normal." Michigan prices are soft, too.

The Market Place AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All prices as of October 13

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U.S. Gulf Coast, cargoes
- **Gasoline, 98 oct prem ..... 11.75↓-12.875**
- Gasoline, 92 oct reg 10.5-11.5
- Kerosine 8.875-9.125
- Heating oil, No. 2 ..... 8.625-9
- Gas oil, 48-52 d.i. 8.875-9.5
- **Fuel oil, bunker "C" ..... $2.00-2.10↓**

Caribbean, cargoes
- Avgas, Grade 100/130 16
- Gasoline, 93 oct research prem 10.75
- Gasoline, 87 oct research reg 9.875
- Gasoline, 79 oct research 9.125
- Gasoline, 70-72 oct motor method 9
- Kerosine 9.125
- Heating oil, No. 2 ..... 8.625
- Gas oil, 48-52 d.i. 8.875
- Fuel oil, bunker "C" $2.00

New York Harbor, barges
- Kerosine 9.95-10.2
- Heating oil, No. 2 ..... 9.45-9.7
- Fuel oil, No. 6 ..... $2.37-2.45

Okla-Group 3, northern shpt., bulk
- Gasoline, 89 oct reg 12-12.75
- Kerosine 10-10.5
- Heating oil, No. 2 9
- Fuel oil, No. 6 ..... $1.40-1.45

Chicago, bulk
- Gasoline, 91 oct reg 11.5-12
- Heating oil, No. 2 ..... 9.5-11.35
- Fuel oil, No. 6 high sulfur 6.9-7

Los Angeles, rack
- Gasoline, 88 oct reg 12.25-13.6
- Diesel fuel, PS 200 ..... 10-11.25
- Light fuel, PS 300 ..... $2.80
- Heavy fuel, PS 400 ..... $2.15-2.35

Natural Gasoline, Grade 26-70
- FOB Group 3 ..... 4.5
- FOB Breckenridge, Tex. 4

LP-Gas
- Propane, Oklahoma (Group 3) 5

Pennsylvania Lubes
- Bright stock, 25 p.t. 22
- 200 vis. neutral, 25 p.t. 21

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent, 95 v. i. 23-24
- Neutral, solvent, 200-210 vis. 19.5-20.5

Gulf Coast Lubes
- Bright stock, solvent, 95 v. i. 24
- Neutral, solvent, 200 vis. 20.5

Eastern Hemisphere

Singapore (Pulau Bukom), cargoes
- Avgas, grade 100/130 ..... 17.25
- Gasoline, 79 oct research 10.375
- Kerosine 10.375
- Gas oil, 48 d. i. minimum 10.25

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, 36.0-36.9 ..... 2.83-3.07
- North Dakota, 36.0-36.9 ..... 3.07
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9 ..... 3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9 ..... 2.92-3.22
  - West Texas, sweet, 36.0-36.9 ..... 3.00-3.07
  - West Texas, N. M., inter., 36.0-36.9 ..... 3.00
  - West Texas, N. M., sour, 32.0-32.9 ..... 2.86
  - East Texas, flat 3.25
  - Mirando, 28.0-28.9 ..... 3.31
- Illinois Basin, flat 3.00
- Pennsylvania Grade, Bradford dist., flat 3.90
- California, Signal Hill, 21.0-21.9 ..... 2.50
- North Louisiana-Arkansas, 36.0-36.9 ..... 2.82-3.02
- Wyoming, sweet, 36.0-36.9 ..... 2.90-3.00
- Wyoming, sour, 32.0-32.9 ..... 2.71

Canada (flat prices, at the well)
- Acheson-Stony Plain (Alta.) 2.61
- Leduc-Woodbend (Alta.) 2.67
- Redwater (Alta.) 2.56
- Daly (Man.) 2.39
- Smiley (Sask.) 2.33

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 48.0-48.9, Tucupido 3.75
- San Joaquin, 41.0-41.9, Puerto la Cruz 3.34
- Oficina, 35.0-35.9, Puerto la Cruz 3.05
- Tia Juana, Medium, 26.0-26.9, Amuay 2.55
- Bachaquero, flat, Las Piedras 1.78-2.05
- Tarra, 38.0-38.9, San Lorenzo 3.08
- Lagunillas Heavy, flat, Cardon 2.10

†*Differential per deg. of grav. varies.*

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura 2.08
- Safaniya, 27.0-27.9, Ras Tanura 1.65
- Iran, 34.0-34.9, Bandar Mashur 2.04
- Iran, 34.0-34.9, Abadan 1.99
- Iraq, 35.0-35.9, Fao 1.98
- Kuwait, 31.0-31.9, Mina-al-Ahmadi 1.85
- Qatar, 41.0-41.9, Umm Said 2.23
- Neutral Zone, Burghan, 23.5-24.4, Mina Saud 1.61
- N. Zone, Eocene-Ratawi, 20.5-21.4, Mina Saud 1.43

Middle East, Eastern Mediterranean
- Arabian, 36.0-36.9, Sidon 2.49
- Iraqi, 36.0-36.9, Tripoli, Banias 2.49

Far East, Cargoes, FOB Lutong, Sarawak
- Seria Light, 37-38 ..... 2.75

KEY TANKER RATES

(Last paid, per long ton, single voyage)

- **U.S. Gulf-New York, clean ... (USMC —5%) $2.71↑**
- **U.S. Gulf-New York, dirty .. (USMC —10%) $2.57↓**
- NWI-USNH, dirty ..... (USMC —50%) $1.35
- NWI-UK/Cont., dirty ..... (Scale —50%) 16/3*
- Persian Gulf-UK/Cont., dirty ..... (Scale —55%) 27/9*
- **Pers. Gulf-USNH, dirty .. (USMC —52½%) $6.03↑**

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DEPT/Personals

JOHN E. ROTH has been elected senior vice-president and a director of Tidewater Oil Co., in San Francisco. He fills the posts left vacant by the recent death of **Lloyd F. Bayer.** Prior to his election, Roth served as administrative vice-president for production, in charge of coordinating Tidewater's domestic and foreign production activities, with headquarters in San Francisco. Before transferring to San Francisco, Roth was general manager of Tidewater's central division, with headquarters in Tulsa.

J. E. Roth

J. I. Harper

JAMES I. HARPER, Sun Oil Co., has been named president of SunOlin Chemical Co., Wilmington, Del., subsidiary of Olin Mathieson Chemical Corp., New York, and Sun Oil Co., Philadelphia, which has just been formed to produce urea. **S. S. Johnson,** Olin Mathieson, is SunOlin's vice-president. Other officers of the new company are: **J. R. Sanderford,** Olin Mathieson, secretary and assistant treasurer; **Joseph T. Wilson, Jr.,** Sun, treasurer and assistant secretary; and **Joseph R. Layton,** Sun, comptroller. Four directors of SunOlin from Olin Mathieson are **Donald W. Drummond, John O. Logan, William B. Copeland,** and **Johnson;** four from Sun are **Clarence H. Thayer, Chalmer G. Kirkbride, Harper,** and **Wilson.**

S. P. KENT has been elected vice-president and manager of operations of **Paria Operations, Inc.,** with headquarters in **Caracas,** Venezuela. Kent has been superintendent of drilling and production for Texaco Exploration Co., Canadian subsidiary of The Texas Co., since 1952. Before that, he was acting assistant manager in Colombia for Texas Petroleum Co., Texaco's Venezuelan subsidiary. Paria is Venezuelan operator for Continental Oil Co. of Venezuela, Ohio Oil Co. of Venezuela, Texas Petroleum Co., Venezuela-Cities Service Petroleum Co., and Richfield Oil Corp.

W. R. SORENSON has been appointed superintendent of the chemicals division at The Texas Co.'s Port Arthur (Tex.) works. Sorenson was formerly assistant superintendent of Texaco's Eagle Points works, in Westville, N.J. He succeeds **M. F. Granville,** now general manager of the company's petrochemical department, in New York. **Howard Wilson,** formerly assistant supervisor of the refining department's process and production division, in New York, succeeds Sorenson at Eagle Point. **W. K. Savage, Jr.,** formerly assistant superintendent of light oil processing at the Port Arthur works, has been transfered to New York to replace Wilson.

G. B. BENNETT has been elected vice-president of sales and operations for Houston Corp., and **DWIGHT B. SPROW** executive vice-president of Houston's pipeline subsidiaries, Houston Texas Gas & Oil Corp. and Coastal Transmission Corp. Bennett has been with Sun Oil Co. for the past 20 years, and Sprow has been vice-president and operating superintendent of Natural Gas Pipeline Co. of America. **Don A. Hardesty** has been named superintendent of pipelines for the subsidiaries, and **J. B. Zachary** superintendent of compressor stations for both companies.

ROY H. SMITH is chief petroleum engineer for Pan American International Oil Co., with headquarters in New York. Smith was formerly chief production engineer at the Tulsa general office of Pan American Petroleum Corp., Pan Am International's parent.

JOHN R. THOMAS was named senior research associate of California Research Corp., Standard Oil Co. of California subsidiary, in San Francisco. Thomas, formerly a research associate, will be responsible for fundamental research in physical chemistry in the petroleum products department. **Glen W. Billman** was appointed supervising research engineer at Cal Research's Richmond (Calif.) laboratory. In his new assignment, Billman will be in charge of technical service in the cracking division at California Standard's Richmond refinery.

K. A. Smith

M. R. Fairlie

M. R. FAIRLIE is head of the newly created products division, and **DR. K. A. SMITH,** head of the process division, both formed as a part of the automotive and industrial research activities of Sinclair Research Laboratories, Inc., New York, subsidiary of Sinclair Oil Corp. Fairlie was formerly in charge of the lubricants division, and Smith was head of the light oils division. Assistant directors of the products division are **M. P. Kleinholz** and **M. L. Hamilton. Dr. R. A. Sanford** is assistant director of the process division.

JOHN K. McKEE is manager of Sun Oil Co.'s Ohio Valley sales region, with headquarters in Cincinnati. McKee, formerly assistant manager of Sun's Middle Atlantic sales region, at Philadelphia, will be responsible for southwestern Ohio, eastern Indiana, northern Kentucky, and northwestern West Virginia.

D. J. Kelly

J. K. McKee

DEE J. KELLY was appointed general counsel for the Moncrief oil interests in Fort Worth, on Oct. 15. Kelly was most recently associated with the Fort Worth law firm of Cantey, Hanger, Johnson, Scarborough & Gooch. Previous to that, he was a legal examiner for the Texas Railroad Commission's oil and gas division.

C. H. WAGER has been named to the newly created position of general traffic manager of Shell Oil Co., New York, responsible for Shell's coast-to-coast traffic department functions and for Shell Chemical Corp.'s traffic activities. **W. H. Morley,** formerly assistant traffic manager east of the Rockies, succeeds Wager as traffic manager for that area. **R. E. Olson,** assistant to the manager of the traffic department in New York, since 1954, succeeds Morley. **W. H. Adams** continues as manager of the traffic department serving the West Coast.

ERNEST MUSSLEWHITE, JR., was named head of the mechanical section in the process research division of Esso Research & Engineering Co., Linden, N.J. Musslewhite, with Esso Research for 16 years, will be in charge of all engineering and construction activities of the process research division.

J. B. ADAMS, refinery manager of U.S. Oil & Refining Co., Tacoma, Wash., was elected vice-president and manager in charge of manufacturing of that company. **G. S. Peterson** was appointed superintendent of operations, and **F. W. Brugman,** formerly assistant engineer, succeeds him as chief engineer.

A. E. JOHNSON has been named superintendent of Sunray Mid-Continent Oil Co.'s new Panhandle drilling and production area, with offices at Perryton, Tex. Johnson was formerly Sunray's area superintendent at Pratt, Kan., and will be replaced there by **C. C. Brunton,** superintendent of the Dora Roberts area at Forsan, Tex. **B. F. Brawley,** formerly production engineer at Oklahoma City, has become engineer for the Panhandle area. The new area is a part of Sunray's North and West Texas district.

CHARLES M. DAWKINS was appointed coordinator of special traffic services for Gulf Oil Corp. in Houston. In this capacity, he will advise and assist all Gulf's subdivisions which operate in the Southwest in connection with their traffic activities. Dawkins was formerly traffic manager for the Houston division.

JOHN J. ROWAN was named manager of the Montreal East refinery of Imperial Oil Ltd., succeeding **Dr. J. L. Huggett,** who has retired. Rowan has been assistant manager of that refinery for the past five years.

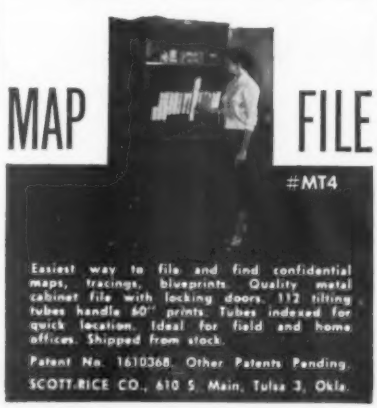
CHARLES F. SARRATT became vice-president and a director of Chris Well Servicing Co., Lindsay, Okla., on Oct. 1. He had been division salesman for Christensen Diamond Products Co., in Oklahoma City.

C. A. SULLINS will become general superintendent of drilling and production for Union Producing Co., Shreveport, on Nov. 1. Sullins, district drilling and production superintendent in Beeville, Tex., replaces **C. A. McDowell,** who is retiring. **W. B. Phillips,** district petroleum engineer in Beeville, replaces Sullins. Phillips's post will be taken by **N. A. Prince,** who has been field drilling and production superintendent at Houma, La.

QUINTON L. DARNELL is intermediate petroleum engineer for Sinclair Oil & Gas Co. at Drumright, Okla. Darnell, with Sinclair since 1948, was most recently assistant gas analyst at Seminole, Okla.

ROBERT J. HASS has been promoted to regional geologist of Phillips Petroleum Co.'s southwestern region, with headquarters in Bartlesville. Hass has been Phillips' district geologist at Casper, Wyo.

P. T. BEE has resigned as executive vice-president of Delhi-Taylor Oil Corp., Dallas, to join the Murchison Bros. interests in Dallas, in a senior executive capacity. Bee has been Delhi-Taylor's executive vice-president since 1955.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Expanding Foreign Corporation with world-wide interests has opening in New York Office for a junior executive preferably graduate in economics or business administration with 3 to 5 years practical experience in petroleum marketing. Position offers good opportunity for advancement and travel home and overseas. Please send résumé to P-9121, Petroleum Week.

BUSINESS OPPORTUNITY

Oil Corporation in Wyoming for sale. Includes refinery and oil rights on 29,000 acres. Current refinery production: 3,500 barrels daily. For details write Mr. Scott, BO-8988, Petroleum Week.

Conservation Is an Obligation

SOME FORESIGHTED OIL MEN have decided to organize to promote sound conservation laws. They have formed the Oil Industry Conservation Forum, headed by E. B. Miller, Jr., a vice-president of Tidewater Oil Co. at Houston, and Jake L. Hamon, independent producer of Dallas.

The organization plans an early meeting of a 20-member steering committee, which is composed of representatives of major companies and independents engaged in drilling and production. Miller said the group will "welcome constructive ideas" from any source.

"We feel it is up to the oil industry to suggest changes [in state regulations] for better conservation," Miller commented. Some of the areas to be considered by the forum include more efficient well spacing, regulatory acceptance of modernized production techniques, and voluntary unit participation.

THERE IS A REAL NEED for such a forum. And we hasten to endorse the principles for which it stands.

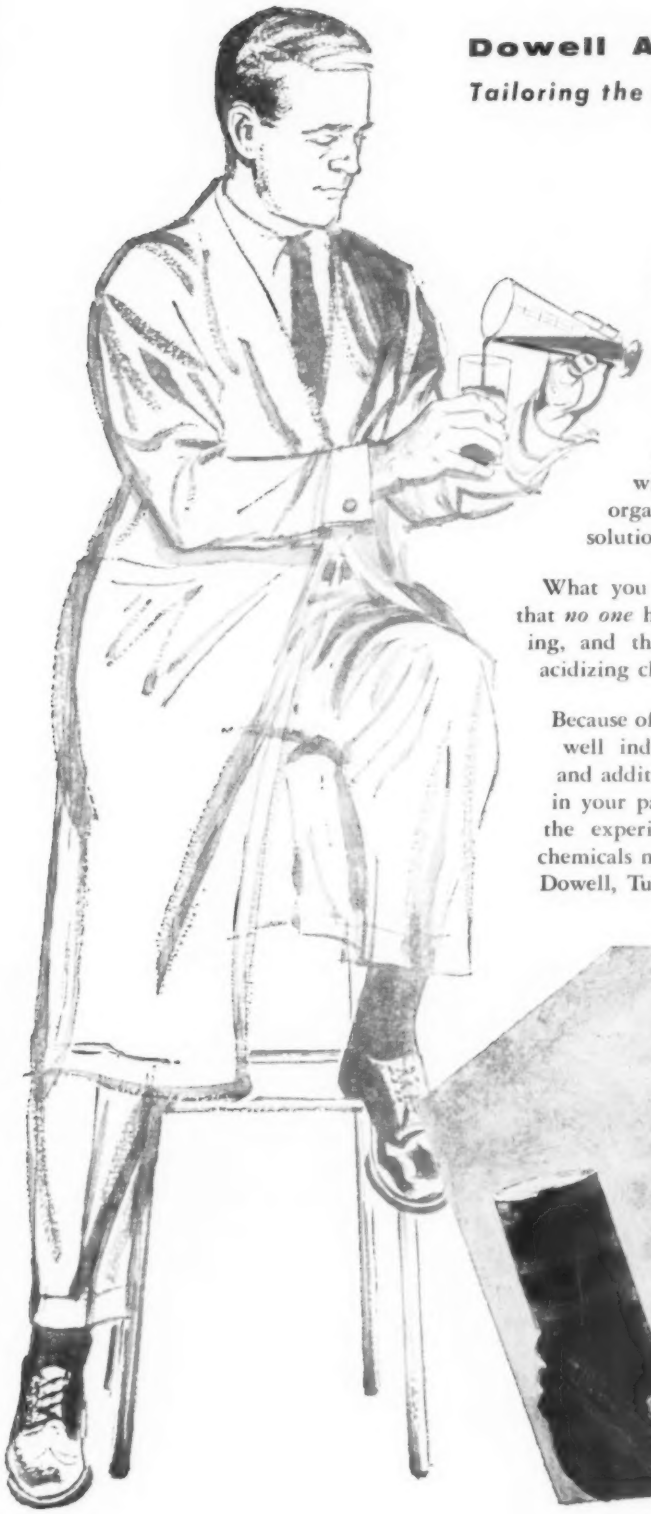
The history of the U.S. oil industry is clouded with many examples of inefficient drilling and production practices, in which overdevelopment of an area has seriously penalized both producers and the consuming public. Producers have suffered through little or no return on their investments. And the public has been a loser because such wasteful practices result in loss of oil underground.

The early days of overdevelopment in East Texas stand out as a horrible example for the industry. In more recent times, development of the Spraberry Trend is another case of inefficient drilling. The low recoveries in that area forced a change in the well-spacing pattern in the midst of development.

And in the fields now being developed in the San Juan Basin, operators are learning new lessons in well spacing. Some of the thin producing horizons tapped by the latest wells indicate a new "Spraberry" experience. Some wells will be marginal producers at best.

COOPERATIVE EFFORTS BY PRODUCERS to work for improved conservation regulations will benefit the entire industry and the nation. It is hoped that the new organization can present carefully formulated and constructive proposals to conservation agencies and legislatures in the producing states.

And it is hoped that those agencies will give serious consideration to the changes that the producers may recommend.



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Tailoring the Right Acid Combination for Your Well

New chemicals to improve the results of acidizing treatments have been coming from Dowell research since 1932. And during that time Dowell service engineers have earned the practical knowledge that comes from long experience in doing a job well. From the moment the Dowell engineer begins working with you, you have the entire Dowell organization bending its efforts toward the solution of your problem.

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with only 30 days' downtime!

Kellogg Alkylation Unit Minimizes Gulf Revamp Costs

Economy-minded engineering by The M. W. Kellogg Company enabled Gulf Oil Corporation to minimize downtime and capital investment when increasing the capacity of Alkylation Unit No. 1 at its Port Arthur refinery.

Now producing 5,000 BPD of alkylate, this former 1,500 BPD unit was expanded primarily by installing two modern, five-section Kellogg Model B Cascade Reactors—shown at left. Other equipment added included pumps, exchangers, vessels, and instruments. By utilizing four original towers and much of the original equipment, costs were reduced considerably.

Despite the problem of integrating the existing equipment with the new, downtime between shutdown of the old unit and putting the expanded facilities on stream was only one month—an insignificant loss compared with savings in investment.

In this case, Gulf's own maintenance crew hooked up the new unit to the existing towers. Kellogg operators assisted in bringing the job on stream.

Kellogg welcomes the opportunity to work on your expansion or revamp projects. For prompt attention, write Kellogg's Contract Sales Division.

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